


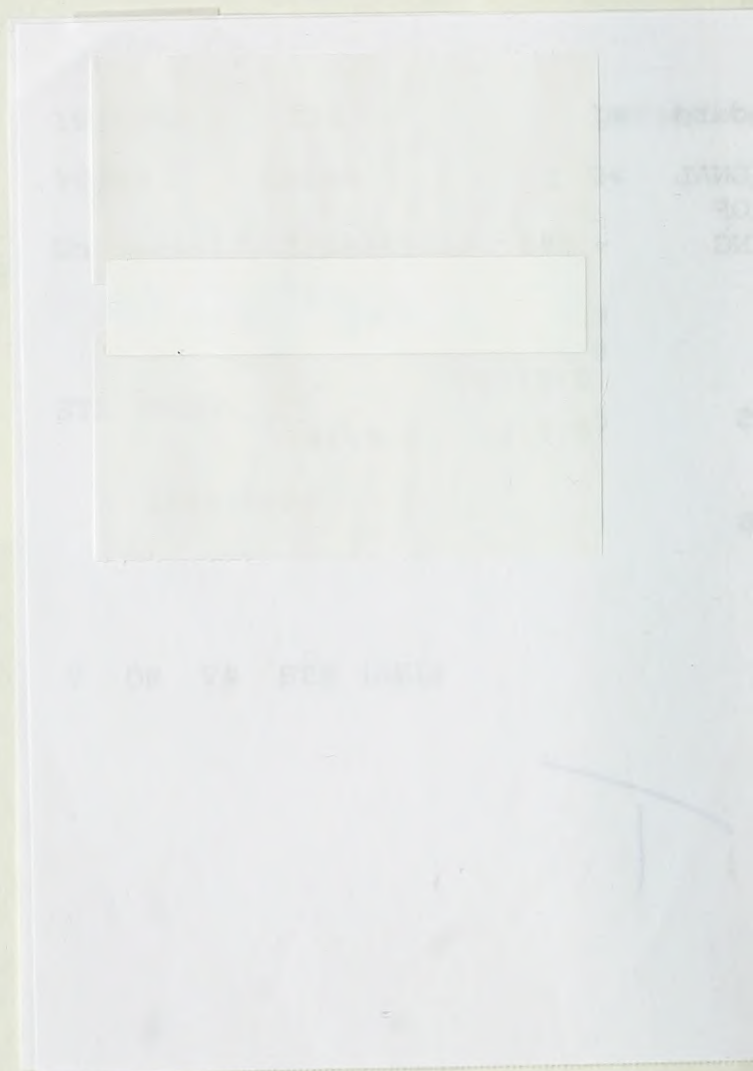
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The International Journal of Accounting



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Accounting-policy choice and firm characteristics in the Asia Pacific region: An international empirical test of Costly Contracting Theory

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Abstract

This study provides evidence on the cross-sectional relationship between firm-specific variables and management's choice of accounting policies by examining four key accounting-policy disclosures in the 2000/2001 annual reports of 442 listed companies in the Asia Pacific region. The dependent variable is the composite measure for the income increasing (decreasing) accounting-policy choice tendency.

The results show that firm-specific variables linked to Costly Contracting Theory partially explain management's choice of accounting policies. Companies that pursue income-increasing accounting techniques are characterized by lower financial leverage, lower level of ownership concentration, and higher investment opportunity sets. This finding holds true when country and industry control variables are not considered. When the control variables are included, the CCT variables are less a factor and instead country of reporting provides the strongest explanation for company managers' choice of accounting policies. Indonesian companies utilize the most income-decreasing accounting technique.

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Keywords: Costly Contracting Theory; Accounting-policy choice; Asia Pacific region

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1. Introduction

This study hypothesizes that a set of firm-specific characteristics linked to Costly Contracting Theory explains management's choice of accounting policies of listed companies in the Asia Pacific region including Australia, Hong Kong, Indonesia, Singapore, and Malaysia. It focuses on the income-increasing (decreasing) aspects of accounting-policy choice. Four key accounting policies examined in this study are: (1) Inventory methods, (2) Depreciation methods, (3) Goodwill treatments and (4) Property, plant, and equipment (PPE) valuations. A threefold criterion is applied in the selection of the four key accounting policies. First, these four issues are chosen because they are observable accounting-policy choices with a high degree of accounting discretion within GAAP. Second, these accounting choices also have potentially large, systematic effects on assets and expenses reported on firms' financial statements. Finally, these policies incorporate accounting methods that can be identified as income-increasing (decreasing) techniques.

The subject matter is especially important in this era of international convergence (GAAP, 2002). Many countries have converged or intended to converge with International Financial Reporting Standards (IFRS).² Little research has examined a firm's portfolio of accounting choices in a cross-boundary context. Prior studies (for example, Bowen, DuCharme, & Shore, 1995; Dhaliwal, Heninger, & Hughes, 1999; Skinner, 1993) have concentrated on accounting choices in a single country. This study fills this gap in the extant literature. The strength of Costly Contracting Theory is in its explanation of economic drivers as predictors of managerial choice. Past studies have shown these variables are useful predictors of companies' accounting-policy choices in single-country domestic settings. This study provides an important extension by the exploration of Costly Contracting Theory in a multi-country setting. This is valuable to test whether these managerial incentives hold in the Asia Pacific region. This focus allows for the examination of Costly Contracting Theory variables in a broader context including country effects as well as industry differences.

The results show that firm-specific variables linked to Costly Contracting Theory partially explain management's choice of accounting policies. Companies that pursue income-increasing accounting techniques are characterized by lower financial leverage, lower level of ownership concentration, and higher investment opportunity sets. However, these results are not found when the control variables are introduced. The country of reporting as a control variable also provides additional important explanations regarding company managers' choice of accounting policies. Indonesian companies utilize the most income-decreasing accounting techniques compared to the other companies from Australia, Hong Kong, Malaysia and Singapore.

² The term International Financial Reporting Standards (IFRS) has both a narrow and a broad meaning. Narrowly, IFRS refers to the new numbered series of pronouncements issued by the International Accounting Standard Board (IASB), as distinct from the series issued by its predecessor, the International Accounting Standards (IAS). More broadly, IFRS refers to the entire body of IASB pronouncements, including standards and interpretations approved by the IASB and IAS as well as the interpretations approved by the Standing Interpretation Committee (SIC) and its predecessor the International Accounting Standards Committee—IASC (<http://www.iasplus.com/standard/standard.htm> (accessed on 25/05/2004)).

The remainder of the paper is organized as follows. Section 2 outlines the accounting regulations in the five countries studied followed by Sections 3 and 4 which provide the theoretical framework and developing the hypotheses, respectively. Section 5 describes the research approach followed by Section 6 which discusses the empirical findings and their implications. Section 7 concludes the paper by addressing the contributions and limitations of the study and ideas for future research.

2. Accounting regulations in the five countries studied

Before and up until 31 December 2001, when the data of this study was collected, the rule makers for each of these five countries resided within the country's political regulatory system. Each country has historically shown different levels of autonomy. For instance, Malaysia prides itself on prompt adoption of international rules whereas Australia has tended to be more individualistic. Over the last few years each of these countries in the Asia Pacific region has pledged commitment to the International Financial Reporting Standards (IFRS) rules.

In Australia, since 2002, the AASB has been implementing the strategic direction from the Financial Reporting Council to adopt International Accounting Standards Board (IASB) Standards for application to periods beginning on or after 1 January 2005.

The Hong Kong Society of Accountants (HKSA) that sets Hong Kong Statements of Standard Accounting Practice (HK SSAP) has moved away from its historical British roots towards conforming to IFRS.

In Indonesia, the standard-setting body is Komite Standar Akuntansi Keuangan (Committee on Financial Accounting Standards). Under Indonesian law, both public and private companies must comply with those accounting standards. Since 1994, it has been the policy of the committee to use International Accounting Standards as the basis for developing Indonesian standards.³ For listed companies, there are additional disclosure requirements imposed by the Capital Market Supervisory Board (Bapepam).

In Malaysia, the Malaysian Accounting Standards Board (MASB) is established under the Financial Reporting Act 1997 (the Act) as an independent authority to develop and issue accounting and financial reporting standards. One of MASB's aims is to pursue a policy of internationalization and harmonization of MASB standards to be compatible, in all significant respects, with standards and concepts of other national and international standard setters, primarily the IASB.

In 2002, the Singapore government created the Council on Corporate Disclosure and Governance (CCDG) to replace the Institute of Certified Public Accountants of Singapore as the accounting standard setter for all companies incorporated in Singapore. The CCDG has now issued a set of accounting standards and interpretations that are almost identical to the current set of IFRS, with the exception of effective dates.

Each of the five countries has financial-reporting regimes separate from their tax rules. Indonesia has a Dutch colonial history and the other four have British roots with Hong Kong in a unique link with the Peoples Republic of China. Thus, the five countries studied

³ <http://www.iasplus.com/country/indonesi.htm> (accessed on 24 May 2004).

are expected to provide diversity for the sample yet all these countries have been moving towards IFRS.

3. Theoretical framework—Costly Contracting Theory

The presence of contracting cost leads researchers to generate testable hypotheses that explain and predict accounting choice. Issues pertaining to the separation of ownership and control are closely associated with general problems of the agency relationship. Jensen and Meckling (1976, p. 308) define an agency relationship as “a contract under which one or more persons (the principal/s) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent.” Within the context of the firm, agency theory provides the basis for a framework pertaining to a conflict of interest between managers, shareholders, and debt holders. Jensen and Meckling (1976) argue that written contractual arrangements can reduce agency costs. Within this structure, two forms of contractual relationship are dealt with: those between the company manager, as an agent, and the company’s shareholders; and those between shareholders and bondholders. However, Klein (1983) contends that these contracts are incomplete for two reasons. First, there is the uncertainty of a large number of possible contingencies which makes it extremely costly for transacting parties to detail all responses in advance to these possibilities. Second, it may be prohibitively costly to measure and specify contractual issues. Because of these problems, a general agency problem is likely to remain.

Managers have the discretion to select accounting procedures from an accepted set. Skinner (1993) argues that it will not be efficient to contractually restrict managerial choice entirely because it is thought that company managers are most likely to know best which particular accounting policies would maximize the value of the firm. He believes that even though *ex post* choice, accounting choice can be efficient. Managers select accounting methods that provide the best way of motivating employees. They will also employ accounting methods that can minimize the company’s potential costs in regard to political visibility or process. Demski, Patell, and Wolfson (1984, p. 17) argue that “the delegation to managers of the choice from among the set of acceptable (accounting) alternatives can best be understood as efficient, equilibrium behavior.”

Costly Contracting Theory has been employed most extensively in the accounting literature to explain management’s choice of accounting policies. It hypothesizes that managers utilize the opportunity available in both the contracts and accepted accounting procedures in their self-interest. This study predicts particular circumstances in which firm characteristics linked to Costly Contracting Theory lead company managers to utilize income-increasing or income-decreasing techniques.

4. Hypotheses development

The general hypotheses addressed in this study are whether there exist systematic explanations between the adoption of income-increasing (decreasing) accounting methods and firm-specific characteristics linked to Costly Contracting Theory.

4.1. Profitability

Company profitability has been used in compensation contracts both explicitly and implicitly. Bushman and Smith (2001) further note that there is widespread evidence of explicit usage of annual bonus plans in corporate executive's long-term performance plans. The implicit use of profitability measures to evaluate the board of directors and compensate top officers also exists in the relationship between profitability measure and various measures of executive pay.

Watts and Zimmerman (1986) believe that, *ceteris paribus*, managers of firms with bonus plans are more likely to choose accounting procedures that shift reported earnings from future periods to the current period. Accordingly, if part of a manager's remuneration is derived from incentive plans which are related to accounting earnings, then management has an incentive to use accounting methods that increase accounting earnings (Hagerman & Zmijewski, 1979). As the vast majority of the sample companies in this study do not disclose the presence or otherwise of a bonus plan, the current year's profitability is used as a proxy measure. This concept can be directly linked to the examination of four key accounting policies in this study. Thus, the following hypothesis is tested:

H1. A firm's profitability is positively associated with the use of income-increasing techniques for the aggregated accounting-policy choices.

4.2. Financial leverage

Dhaliwal, Salamon, and Smith (1982) argue that accounting methods are associated with financial leverage because restrictive covenants in the firm's credit agreements exist. Debt agreements usually include covenants restricting the level of financial ratios such as leverage, liquidity, and profitability. It is believed that the closer a business is to breaching an accounting-based debt constraint, the more likely it is for management to adopt accounting methods that increase income (Watts & Zimmerman, 1986). Then, company managers are expected to use income-increasing accounting methods in order to reduce the possibility of covenant violations and avoid the possible costs of renegotiation of debt agreements. Hence, managers of firms with high leverage ratios are more likely to choose accounting methods that increase reported income. The following hypothesis is tested:

H2. A firm's financial-leverage position is positively associated with the use of income-increasing techniques for the aggregated accounting-policy choices.

4.3. Political visibility (measured by size)

The size hypothesis is based on the assumption that large firms are more politically sensitive and have relatively larger wealth transfers imposed on them (political costs) than smaller firms (Watts & Zimmerman, 1986). The hypothesized relationship between firm size and income effect of the firm's accounting methods has been supported by empirical evidence such as Bowen, Noreen, and Lacey (1981); Dhaliwal et al. (1999); Hagerman

and Zmijewski (1979); Skinner (1993); and Watts and Zimmerman (1978). Linking this concept to the study focus, the following hypothesis is tested.

H3. A firm's size is negatively associated with the use of income-increasing techniques for the aggregated accounting-policy choices.

4.4. Ownership concentration

Lemmon and Lins (2003) suggest that differences in firm-ownership structure explain variations in firm performance. This indicates that ownership characteristics matter because they influence the desired rate of return and may also influence diversification strategy (McGee & Thomas, 1986). Fan and Wong (2002) contend that the share-ownership structure delineates a firm's agency problem and has an effect on the firm's reporting. They suggest that when there is a high level of ownership concentration these shareholders will also control the production of the firm's accounting information and financial-reporting policies.

Studies such as Dhaliwal et al. (1982) document that a firm's ownership structure is a determinant factor of management's choice of accounting methods. Niehaus (1989) hypothesizes that when ownership is diffuse, managers exercise considerable discretion over the choice of accounting methods. Dhaliwal et al. (1982) argue that Watts and Zimmerman's (1978) positive theory leads to the prediction that management controlled firms are more likely than owner controlled firms to adopt accounting methods that increase reported earnings. Therefore, the following hypothesis is examined:

H4. A firm's level of ownership concentration is negatively associated with the use of income-increasing techniques for the aggregated accounting-policy choices.

4.5. Investment opportunity set and assets-in-place

The term investment opportunity set (IOS) refers to the extent to which firm value depends on future discretionary expenditures by the firm. Assets-in-place (AIP) refers to those assets whose ultimate value does not principally depend on discretionary investment by managers (Skinner, 1993). Smith and Watts (1992) believe that accounting choice as a corporate policy varies across firms as a function of the IOS. Additionally, Watts and Zimmerman (1986) suggest that the assets of growth firms are mainly represented by future investment, hence are more difficult to observe. Therefore, Skinner (1993) argues that contracts, based on the less readily observed values of future investments, provide managers with greater flexibility to act opportunistically ex post.

It is argued that the greater the assets-in-place and investment opportunity set the more likely the company will use earnings-based bonus plans (because accounting numbers are relatively good measures of performance). Therefore, it is more likely to use income-increasing accounting procedures. Similarly, if there is a greater level of AIP and IOS, the company will be more likely to use accounting-based debt covenants (again because accounting numbers are relatively good measures of performance). Therefore, the

companies will be more likely to use income-increasing accounting procedures (Dopuch & Pincus, 1988; Skinner, 1993; Smith & Warner, 1979).

Based on the above discussion the following hypotheses are tested:

H5. A firm's investment opportunity set is positively associated with the use of income-increasing techniques for the aggregated accounting-policy choices.

H6. A firm's assets-in-place is positively associated with the use of income-increasing techniques for the aggregated accounting-policy choices.

5. Research approach

5.1. Data

Data were collected from a random sample of 442 listed companies' annual reports for fiscal year-ends ranging from December 2000 to September 2001. The reports include 83, 102, 84, 93, and 80 annual reports of companies listed in the stock exchanges of Australia, Hong Kong, Indonesia, Malaysia, and Singapore, respectively (see Table 1).

Table 1 shows that this study incorporates a sample of 13% of the population of listed companies in the five countries studied.

5.2. Independent and control variables

The independent variables are measured as follow. Prof is a proxy measure for bonus plan measuring profitability by the ratio of operating profit divided by operating revenues. Lev is leverage proxied by total book value of long-term debt divided by total book value of equity. Size is measured by total assets at the end of the financial year in US\$ and logged to reduce skewness (Tabachnick & Fidell, 1996). Owncon or the ownership concentration is the percentage of the sum of all the ownership representing 10% or more of the total issued share capital. IOS or the investment opportunity set measures gross property, plant, and equipment (at historic cost) divided by the market value of the firm where market value of the firm is equal to market value of equity plus

Table 1
Number of companies listed in the main stock exchange in the five countries as of 31 December 2001

Countries	Source	Number of listed companies	Sample	%
Australia	Australian Stock Exchange	1410	83	6
Hong Kong	Hong Kong Stock Exchange	746	102	14
Indonesia	Jakarta Stock Exchange	316	84	27
Malaysia	Kuala Lumpur Stock Exchange ^a	529	93	18
Singapore	Singapore Stock Exchange	386	80	21
Total		3387	442	13

Source: Corresponding web site of Stock Exchange from each country.

^a Is now known as Bursa Malaysia.

Table 2

The descriptive statistics of the explanatory variables

Variables	<i>n</i>	Mean	Min	Max	SD	Skewness
Profitability (Prof) ^a	442	-.02	-3.32	.88	.48	-3.953
Leverage (Lev)	442	.14	.00	.92	.16	1.465
Total assets (million US\$)	442	379.493	2.52	13,902	1127	6.948
LogTA (Size)	442	7.98	6.4	10.14	.65	.570
Ownership concentration (OwnCon)	437	.33	.00	.99	.29	.242
Investment opportunity set (IOS)	383	.47	.0014	2.55	.40	1.401
Assets-in-place (AIP)	442	.33	.00	.96	.21	.422

n: sample size and excluded samples that have any missing values.

^a Median of profitability: .0630.

book value of debt. AIP or assets-in-place is the ratio of the book value of total property, plant, and equipment (PPE) to total assets.

Table 2 provides a summary of the descriptive statistics for the explanatory variables. From the total sample of 442 companies, 437 provided information for ownership and 383 for IOS.

The Profitability (Prof) variable indicates that in the year of study the average company profitability is negative 2.34% with the median a positive 6.3%. This suggests that some companies are experiencing severe loss while more companies are enjoying profit. There are 110 (25%) loss companies and 332 (75%) profit companies.

Financial leverage (Lev variable) is proxied by total book value of long-term debt divided by total book value of equity. The mean of the companies' financial leverage is 14% which is relatively low compared to other international studies. There are 26 companies with no leverage. Those include 2, 11, 5, 2, and 6 companies from Australia, Hong Kong, Indonesia, Malaysia, and Singapore, respectively.

Total assets⁴ of the sample companies range from US\$2.5 million to US\$13,902 million and the average is US\$379.5 million. The mean of total assets of Australia, Hong Kong, Indonesia, Malaysia, and Singapore is US\$510.21 million, US\$536.36 million, US\$182.16 million, US\$487.58 million, and US\$125.43 million, respectively. Firm size across the five nations varies greatly.⁵ The smallest company is listed on the Singapore Stock Exchange while the largest company is a company listed on the Hong Kong Stock Exchange.

Ownership concentration is thought to be an effective monitoring mechanism, reducing opportunistic conduct in respect to management's choice of accounting policies. The mean of companies' ownership concentration for the overall sample companies is 33% with the

⁴ A large majority of the sample companies present their financial statements using local currency. For analysis purposes, total assets of each companies that are not presented in US\$ are converted into US\$ at the exchange rate as of fiscal year-end. This study uses the conversion rate online facilities provided by the Bank of Canada available on <http://www.bankofcanada.ca/en/exchange-convert.htm>.

⁵ The nature of the variations of firm size is consistent with the finding of Zarzeski (1996) who investigates 256 companies from seven nations: France, Germany, Hong Kong, Japan, Norway, United Kingdom, and United States. The average of firm total assets of each country ranges from the minimum US\$24 million to the maximum US\$192,876 million and the average is US\$6853 million.

Table 3

The four key accounting policies stated in companies' annual report for the year-ends 2000/2001

Country	Inventory		Depreciation		Goodwill		PPE		Total sample
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Australia	62	75	82	98	55	66	83	100	83
Hong Kong	87	85	102	100	88	86	102	100	102
Indonesia	83	99	84	100	17	20	83	100	84
Malaysia	93	100	93	100	49	53	93	100	93
Singapore	77	96	80	100	60	75	80	100	80
Total	402	90	441	99.8	269	60.9	442	100	442

standard deviation of 29%. All countries except for Indonesia have very similar ownership structures ranging only between 30% and 32%. The mean of ownership concentration is the highest (62%) for Indonesian companies and the lowest (30%) for Australian companies.

The investment opportunity set (IOS) variable measures gross property, plant, and equipment (at historic cost) divided by the market value of the firm where market value of the firm is equal to market value of equity plus book value of debt. The overall mean of the IOS is 47%. There are only 383 companies whose market-value data as of the end of the financial year are available from Datasream. Among those, eight companies have a very small⁶ figure for the IOS. The mean for the IOS of Australian companies is the lowest (40%); that of Malaysian companies is the highest (58%). Assets-in-place (AIP variable) is the ratio of the book value of total property, plant, and equipment (PPE) to total assets. The mean of AIP is 33% with a minimum of 0 and a maximum of 99%. Among the five countries studied, the mean of AIP of Hong Kong companies is the lowest (24%); that of Malaysian companies is the highest (41%).

5.3. Management's selection of the four key accounting policies

Table 3 provides an overview of the usage of accounting policies used by the companies in our sample sorted by country. It summarizes the availability of the four key accounting policies and the frequency of use for each accounting method being studied.

Table 3 shows that the lowest rate of policy use stated in the annual report is for the treatment of goodwill. The highest is for the PPE valuation base. However, it is important to note that management's choice for the PPE valuation base for Indonesian companies is different in nature from the other four countries. Indonesia is the only country in our study where companies do not actually have an absolute choice regarding the PPE valuation base. Indonesian companies report their PPE based on historical cost but they are allowed to revalue certain assets only if required to do so by the Government. They disclose information of the PPE valuation base used, but do not

⁶ Some of the values presented as zero (0) are a rounding of the very tiny actual number calculated by using SP55. For example, a company from Hong Kong had an IOS of .00148250 which was rounded to zero.

provide details of PPE revaluation. For this reason, the effect of individual PPE choice is not examined for Indonesian companies.⁷

5.4. *Classification scheme for each of the four accounting policies*

For the measurement of the dependent variable, key accounting issues are ordinarily categorized according to their effect on net income (more income increasing or income decreasing). Key accounting policies examined are inventory methods, depreciation methods, goodwill treatment, and valuation base of property, plant and equipment (PPE). These policies incorporate accounting methods that can be identified as income-increasing (decreasing) techniques. In line with Skinner (1993) and Bowen et al. (1995), each of the four key accounting policies is classified into income-increasing (decreasing) tendency, as a measure of their impact on the reported income. Based on the accounting policies used, each company was assigned a value ranging from zero (the most income-decreasing technique) to two (the most income-increasing technique). After assigning a value for each accounting policy, a composite measure for the choices of the four accounting policies is then calculated for each company. The composite-measure score for each company is calculated based on the number of accounting policies disclosed by the company.

First is the classification scheme for inventory measurement. Management's inventory-method choices include FIFO, average cost, and other methods (e.g., specific identification, retail prices). An inventory method is assigned a value range from zero (the most income-decreasing technique) to two (the most income-increasing technique). Skinner (1993) assumes in a given year that input prices are rising,⁸ the FIFO results in higher reported income than other methods. Thus, the use of FIFO as the most income-increasing method choice is given an assigned value of two.

Second is the use of the straight-line method which will have an income-increasing effect relative to an accelerated method (Rahman & Scapens, 1988). This study codes the use of its straight-line depreciation method as an income-increasing method with a value of two, the use of a combination of straight-line and accelerated methods as an

⁷ The PPE valuation policy in Indonesia is mandated by the government. In accordance with PSAK No. 16 Paragraph 66 (IAI 1999), Indonesian listed companies report fixed assets based on their historical cost. Revaluation is used only under special circumstances as prescribed by the Indonesian government. In the year of our study, Indonesian companies sampled stated their PPE at historical costs or revaluations in accordance with existing government regulations (Ministry of Finance Decree No. 384/KMK/04/1998). Since the PPE policy choice for Indonesian companies is not voluntary, it is not relevant to the issue investigated in the paper and is therefore excluded.

⁸ In the period of study, inflation rates in all countries were positive except for Hong Kong. There was negative inflation in Hong Kong with -6.6% in 2000 and it became -1.0% in 2001 (<http://devdata.worldbank.org/external/CPPProfile.asp?SelectedCountry=HKG&CCODE>, accessed on 31 January 2003). However, the Hong Kong Composite Consumer Price Index in 1998 (based on 1994–1995) was 117.9 and the inflation rate through the 1990s was positive (http://www.info.gov.hk/hk2000/eng/appendices/index_content.htm, accessed on 16 June 2002). Thus, during the year of study, the use of FIFO for inventory will result in a higher reported income compared to other measurement techniques such as LIFO. Historically, Hong Kong has experienced positive albeit low inflation rates. This indicates that the negative inflation was only a temporary phenomenon.

intermediate with a value of one, and the use of accelerated methods as an income-decreasing approach with a value of zero.⁹

Third is the classification scheme for goodwill. Goodwill, at acquisition, is the difference between the price paid for a corporate acquisition and the fair value of the net assets acquired. The treatment methods of goodwill are categorized and assigned values ranging from zero (the most income-decreasing technique) to two (the most income-increasing technique). This study codes the use of write-off against the balance sheet as income increasing,¹⁰ the use of the amortized method as income decreasing, and the write-off of goodwill to the income statement as the most income decreasing.

Fourth is the classification scheme for the PPE valuation base. The selection for the PPE valuation base by management includes historical cost-valuation and revaluation-based methods (modified historical cost). A revaluation of depreciable assets affects profit calculation since depreciation reflects the most recent carrying amount. Specifically, the net increase in tangible assets will be followed by lower periodic income figures. Finally, depending on companies' selection of the PPE valuation bases, in this study the sample companies are assigned values ranging from zero (the most income-decreasing technique) to two (the most income-increasing technique). This study codes the use of historical cost-valuation base as income increasing and the use of revaluation-based methods as more income decreasing. In addition, it classifies the use of a combination of historical cost and revaluation as either an income-decreasing method or an intermediate, based on the magnitude of the revaluation.

Table 4 summarizes the classification scheme of management's choice for the four key accounting policies.

Table 5 summarizes utilization for the various methods of each of the four accounting policies scrutinized in this study. As shown in this table, there are considerable variations in accounting practices for the four key accounting policies in listed companies in the Asia Pacific region.¹¹ There are no companies that use the LIFO method for their inventory valuation. For each of the four key accounting policies, the most popular technique is FIFO, then the straight-line method, write-off to reserve, historical cost for inventory, depreciation, goodwill, and PPE, respectively.

Table 5 classifies the sample companies based on their selections of accounting techniques ranging from the most income increasing to the most income decreasing for each accounting policy. We find that 43% of companies use the FIFO cost-flow assumption. The straight-line depreciation method is applied by most companies from all five countries. In fact, 378 companies, 85.7% of the sample, use the straight-line

⁹ Bowen et al. (1995), Rahman and Scapens (1988), and Skinner (1993) use the scheme outlined above for classifying particular depreciation methods as income-increasing or income-decreasing methods.

¹⁰ Direct write-off of goodwill to a reserve is income increasing in the sense that it completely eliminates any goodwill expense from impacting on the Income Statement. Thus, it will never decrease profit.

¹¹ Most accounting policies were available to all sampled companies in the five countries. There were a few exceptions. LIFO was allowed in Indonesia but none of the sampled companies used it. Finally, Australia and Indonesia did not allow the unusual use of direct write-off to reserve but it was allowed in Hong Kong, Singapore, and Malaysia. Overall, it is felt that the sampled companies still had a wide range of accounting policies to choose from.

Table 4

Assigned value for each accounting method for the four accounting policies

Description	Assigned value
<i>A. Assigned value of individual method score (IMS) for inventory methods</i>	
First-in-first-out (FIFO) inventory cost flow assumption	2
A combination of FIFO cost flow assumption and other methods other than average method	1.5
A combination of average cost and FIFO cost flow assumption	1
A combination of average cost and other methods other than FIFO	.5
Average cost method	0
<i>B. Assigned value of individual method score (IMS) for depreciation methods</i>	
Straight-line methods	2
A combination of accelerated and straight-line methods, or straight-line and units-of-production depreciation methods, or accelerated, straight-line, and units-of-production depreciation methods	1
Accelerated methods	0
<i>C. Assigned value of individual method score (IMS) for goodwill treatments</i>	
Write-off all to reserves	2
Amortize for 20 years or more	1.5
Amortize for 10 to 19 years	1
Amortize for fewer than 10 years	.5
Write-off all to the income statement	0
<i>D. Assigned value of individual method score (IMS) for PPE valuation bases</i>	
For historical cost valuation base	2
For historical cost valuation base and revaluation of less than 33.33% of the PPE	1.5
For historical cost valuation base and revaluation of 33.34% to 66.67% of the PPE	1
For historical cost valuation base and revaluation of 66.68% to 99.9% of the PPE	.5
For revaluation base	0

depreciation method. Of the 269 companies in the sample with a stated goodwill approach, 117 (43.5%) write goodwill off totally in the year of acquisition. The other half of the transaction is against equity reserves in the balance sheet. More than half (186 or 52%) of sample companies use the historical cost (HC) valuation base, only two companies (both from Hong Kong) use solely the revaluation base (Rev), and 47.5% of the companies apply mixed-valuation bases. However, the majority of companies that use the mixed-valuation base revalue relatively small portions of their PPE, 33.3% or less.

This variation of accounting policies across companies might be driven by a variety of company-specific characteristics. Statistical tests are performed to analyze whether management's accounting-policy choices differ between the respective countries and industries.

5.5. Measurement for a composite dependent variable

Our sample choice criteria include the requirement that a company use at least two of the four applicable accounting-policy choices. These are: inventory measurement,

Table 5

Various methods of the four accounting policies in the companies' annual reports for year-ends 2000/2001

Inventory				Depreciation				Goodwill				PPE			
Method 1)	IMS	n	%	Method 2)	IMS	n	%	Method 3)	IMS	n	%	Method 4)	IMS	n	%
FIFO	2	174	43	SL	2	378	85.7	WR	2	117	43.5	HC	2	186	52.0
Mix1	1.5	4	1					A1	1.5	96	35.7	Mix1	1.5	121	33.8
Mix2	1	56	14	Mix	1	35	8.0	A2	1	13	4.8	Mix2	1	29	8.1
Mix3	.5	9	2					A3	.5	37	13.8	Mix3	.5	20	5.6
Ave	0	159	40	Acc	0	35	6.3	WI	0	6	2.2	Rev	0	2	.6
Total		402	100	Total		441	100	Total		269	100	Total		258	100

Definition of acronyms:

IMS: Individual Method Score, see Table 4 for further details.

n: Number of companies.

Method 1): Accounting methods for inventory:

FIFO: first-in-first-out inventory cost flow assumption; Mix1: a combination of FIFO cost flow assumption and other methods; Mix2: a combination of average cost and FIFO cost flow assumption; Mix3: a combination of average cost and other methods other than FIFO; Ave: average cost method.

Method 2): Accounting methods for depreciation:

SL: Straight-line method; Mix: a combination of accelerated and straight-line methods, or straight-line and units-of-production depreciation methods, or accelerated, straight-line, and units-of-production depreciation methods; Acc: Accelerated method.

Method 3): Accounting methods for Goodwill:

WR: write-off to reserves; A1: amortize for 20 years or more; A2: amortize for 10 to 19 years; A3: amortize for fewer than 10 years; WI: write-off to the income statement.

Method 4): Accounting methods PPE valuation:

HC: 2 for historical cost valuation base; Mix1: 1.5 for historical cost valuation base and revaluation of less than 33.33% of the PPE; Mix2: 1 for historical cost valuation base and revaluation of 33.34% to 66.67% of the PPE; Mix3: .5 for historical cost valuation base and revaluation of 66.68% to 99.9% of the PPE; Rev: 0 for revaluation base.

depreciation methods, goodwill treatments, and PPE valuation bases.¹² This criterion leads to a set of possible combinations of key accounting methods available in each company where the minimum available choices is two and the maximum is four.

In most situations, company managers can choose accounting policies singly or jointly to accomplish one or several goals in respect to their contractual arrangements. Since there are potential conflicts among multiple goals in the choice of accounting methods, managers will consider the combinations of policies that make up the accounting-policy strategy. The values of companies' composite-measure scores allow this study to determine whether a company tends to select income-increasing or -decreasing techniques. This approach assumes that the accounting choices made by firms are part of a larger, overall strategy rather than single choices made independently (Meyer, Karim, & Gara, 2000). Therefore, in this study, the dependent variable is the income-increasing (decreasing) accounting-policy choice tendency. In line with approaches used by Skinner

¹² Of the 442 sample companies, the majority of them (229 or 52%) have the four key policies stated in their annual reports. There are 85 (19%) companies that have two of the policies stated, and 128 (29%) companies have three key policies. More than half of the companies from each of four countries of study, including Australia, Hong Kong, Malaysia and Singapore, have the four key accounting choices.

(1993) and Bowen et al. (1995), this study calculates a composite-measure score via the following formula:

$$CMS_i = \frac{\sum I_i, D_i, G_i, P_i}{n} \tag{1}$$

Where,

- CMS Composite measure score
- i* Company specific
- I* Individual method score (IMS) for inventory methods
- D* Individual method score (IMS) for depreciation methods
- G* Individual method score (IMS) for goodwill treatments
- P* Individual method score (IMS) for PPE valuation bases
- n* The appropriate number of the four accounting policies disclosed in the company's annual report.

5.6. Control variables

This study includes two control variables. These are industry grouping (Ind8) and country of reporting (Country). Sample companies from the five countries are grouped into eight industry groups based on the International Standard Industrial Classification of all Economic Activities (ISIC Rev. 3.1, 2003). In line with the procedure adopted by Williams (1999), this study produces industry classifications as follows: Core, Resources, Diverse, Food, Chemicals, Services, Retail, and Property groups, respectively.

Country as a control variable is the categorical variable to represent country of reporting. Table 6 presents the descriptive statistics of CMS across the five countries studied. The table shows that among the five countries, Hong Kong companies, on average, select the most income-increasing accounting techniques (CMS score of 1.64 out of 2). Conversely, Indonesian companies, on average, select the most income-decreasing accounting techniques, with the mean of CMS being 1.25.

Table 7 shows the mean of CMS for accounting policies across industry groups. Companies in the property–industry group tend to use income-increasing accounting techniques with a mean of CMS being 1.66. Companies in the chemicals group use the most income-decreasing accounting techniques (CMS of 1.39) compared to companies from other industry groups. However, as shown in Section 6, these differences are not statistically significant.

Table 6
Descriptive statistics of the CMS across the five countries

Country	<i>n</i>	Min	Max	Mean	St Dev
Australia	83	.33	2.00	1.51	.40
Hong Kong	102	1.00	2.00	1.64	.32
Indonesia	84	.50	2.00	1.25	.44
Malaysia	93	.67	2.00	1.60	.32
Singapore	80	.63	2.00	1.57	.39
Total	442	.33	2.00	1.51	.39

Table 7
Descriptive statistics of CMS across eight industry groups

Industry	<i>n</i>	Min	Max	Mean	St dev
Property	37	1.00	2.00	1.66	.30
Services	34	1.00	2.00	1.60	.30
Food	49	.50	2.00	1.58	.39
Core	80	.50	2.00	1.52	.37
Retail	78	.67	2.00	1.52	.36
Resources	68	.33	2.00	1.44	.45
Diverse	47	.50	2.00	1.44	.45
Chemicals	49	.50	2.00	1.39	.42
Total	442	.33	2.00	1.51	.39

In summary, the tendency of management to select income-increasing (decreasing) accounting techniques varies among countries. This study further examines statistically whether this variation of management's choice of accounting policies is driven by firm-specific variables linked to Costly Contracting Theory.

6. Statistical results and implications

This study utilizes the General Linear Model (GLM) that provides regression analysis and analysis of variance for one dependent variable by one or more factors and/or variables. The relationships between CMS and the explanatory variables are presented in Eq. (2).

$$\text{CMS}_i = a + b_1\text{Prof}_i + b_2\text{Lev}_i + b_3\text{Size}_i + b_4\text{OwnCon}_i + b_5\text{IOS}_i + b_6\text{AIP}_i + C_1\text{Ind8}_i + C_2\text{Country} + e \quad (2)$$

where explanatory variables are as defined above, and

CMS	Composite measure score
<i>i</i>	Company specific
<i>a</i>	Constant
<i>b</i>	Coefficients on continuous variables
<i>e</i>	Error term
<i>C</i>	Coefficients on categorical (control) variables

Table 8 presents the correlation matrix for the six firm-specific variables including the two control variables. This table shows that the highest correlation exists between the IOS and AIP with a correlation value of .586. This lessens concerns about multicollinearity in the regression analysis. Two sets of regressions were run using GLM. Regression 1 examines the effect of a set of six firm-specific variables on accounting choices.

Table 8
Correlation matrix for the independent and control variables

Variables	Prof	Lev	Size (LogTA)	OwnCon	IOS	AIP	Country
Prof	1.000						
Leverage	.098*	1.000					
Size (LogTA)	.173**	.345**	1.000				
OwnCon	.134**	.080	-.066	1.000			
IOS	.150**	-.030	-.036	-.001	1.000		
AIP	.071	.207	-.074	.043	.586**	1.000	
Country	.024	-.169**	-.095**	.209**	.159*	.124**	1.000
Ind8	-.169**	.065	.073	.057	-.172**	-.104*	.066

*Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed).

Regression 2 examines the effect of six firm-specific variables and control variables on accounting choices. The multiple regression results¹³ are presented in Table 9.

The predictability power of regression 2, which includes all predictor as well as control variables, is .138, which is higher than that of regression 1, which includes only the CCT variables, which is .116. This finding suggests that the control variables help explain management’s selection of accounting policies. As shown in Table 9, country of reporting is a highly significant factor for management’s selection of accounting policies with a *p* value of .001. Moreover, regression 1 reveals that five variables help explain management’s choice of accounting policies with different levels of significance. Profitability was the only variable that did not help explain management’s selection of accounting policies. The IOS is a highly significant predictor with a *p* value of .004. The Lev, OwnCon, and AIP variables are significant predictors with *p* values of .031, .041, and .021, respectively. The directionality signs for the relationships are consistent between those two regressions.

The results of regression 2 (all explanatory and the control variables) show that only the IOS variable has a highly significant coefficient, with a *p* value of 0.008, as well as the country of reporting, with a *p* value of 0.001. The other firm-specific variables—industry group as a control variable and the interaction between country and industry group—do not provide significant results. This is an important finding. These statistical results suggest that country of reporting is the strongest control variable.

These results indicate that accounting-policy choices in listed companies across five countries in the Asia Pacific region are influenced by firm-specific factors linked to Costly Contracting Theory. This finding holds when the control variables (country and industry) are not considered. When these additional variables are added, the IOS position

¹³ As the dependent variable can also be viewed as a categorical variable, to test the robustness of simple- and multiple-regression results further, additional tests were conducted by using ordinal regression statistical analysis which were then compared to the statistical analysis results from those two sets of analyses. Due to space limitations, the statistical results from the ordinal regressions are not reported here since the key finding is that both forms of analyses give virtually the same results as those reported in Table 9. Moreover, simple bivariate regressions were also conducted to ensure that even moderate levels of correlations (see Table 8) did not influence the hypotheses testing. The bivariate results (not shown for brevity) were the same.

Table 9
Multiple regression results

Predictors	Predicted sign	Regression 1	Regression 2
		Actual sign and <i>p</i> value	Actual sign and <i>p</i> value
Profitability (Prof)	+	(+) n.s	(+) n.s
Leverage (Lev) ⁺⁺	+	(–) .031**	(–) n.s.
LogTA (Size)	–	(+) .090***	(+) n.s
Ownership concentration (Owncon) ⁺⁺⁺	–	(–) .041**	(–) n.s.
Investment opportunity set (IOS)	+	(+) .004*	(+) .008*
Assets-in-place (AIP)	+	(–) .021**	(–) n.s.
Ind8			n.s
Country			.001*
Ind8 * Country			n.s
<i>n</i>		378	378
Adjusted <i>R</i> ²		.116	.138

*Highly significant at $p < .01$ level, **Significant at $p < .05$ level, *** Moderately significant at $p < .10$ level, n.s.: not significant. ⁺⁺Lev is highly significant at p value .003 in the simple regression. ⁺⁺⁺Owncon is moderately significant at p value .054 in the simple regression.

of the company and the country of reporting are the key predictors. The major findings of this statistical analysis and their implications are summarized below.

- The regression analysis shows that the profitability variable is an insignificant predictor of management's selection of accounting policies. Thus, H1 is not supported. A plausible explanation is that companies with a low profitability figure or in a loss situation have little or no incentive to increase the income number. Therefore, accounting-policy choices are less important. As suggested by Healy (1985), the upper and lower bounds in compensation contracts provide manager's an incentive toward "bath-taking" behavior, that is, when earnings are already below expectation or are negative for a certain period, managers may expense as many costs as possible in that period in order to have a much better performance in the following period. Moreover, profitability was used as a proxy variable for the (undisclosed) effect of a bonus plan and is thus an imperfect measure.
- Although the leverage variable significantly helps explain management's selection of accounting policies, it is negatively associated with the use of the income-increasing tendency. H2 is, therefore, not supported due to the opposite directions of its signs. A plausible explanation for this finding is that managers of companies are concerned more about their balance-sheet attributes than the income statement. For this, some companies might prefer to select accounting techniques based on their favorable balance-sheet effects (Aboody, Kasznik, & Williams, 2000). For instance, a company may select to revalue its fixed assets. Although asset revaluations may decrease reported accounting income they definitely increase assets (hence reducing the leverage). Thus, company managers might also try to reduce the leverage ratio by increasing asset value. Moreover, the average-leverage figure for the sample companies was a low 14%; therefore, many companies may be a long way from debt-covenant restrictions.
- This study finds that the Size variable is not a significant predictor for management's selection of accounting policies. Thus, H3 is not supported. Many positivist accounting

researchers such as Watts and Zimmerman (1990) utilize size to proxy for a firm's political sensitivity and thus the incentive of managers to select income-decreasing accounting choices. Skinner (1993) finds that larger firms are more likely to select income-decreasing accounting policies. The finding of this study implies that in the Asia Pacific context a firm's political sensitivity does not affect a firm's selection of accounting policies.

- The level of ownership concentration helps us understand the companies accounting choices. It negatively affects the income-increasing tendency. Thus, H4 is supported. This finding suggests that company managers select accounting policies in accordance with companies' constraints inherent to the principal–agent relationships in a company. In this study, managers of a more diffused ownership company tend to select income-increasing accounting techniques. Thus, differing levels of ownership concentration may allow for different levels of managerial discretion. However, this result does not hold true when country and industry are included in the statistical analysis. The country of reporting is an especially strong predictor.
- The IOS variable is another important predictor. It positively affects the income-increasing tendency with a *p* value of .004 (from regression 1) and .008 (from regression 2). Thus, H5 is supported. A company with a higher level of IOS faces constraints that are different from one with a lower level of IOS. The former tends to select income-increasing accounting techniques since naturally managers of this company have less discretion on managing its assets compared to the latter. This suggests that low-growth firms¹⁴ tend to make income-increasing accounting choices as their strategy for the aggregate of the four accounting policies. The plausible explanation for this is that low-growth firms have less variable earnings,¹⁵ therefore, management has a greater incentive to pursue income-increasing accounting policies. Regression 1, as shown in Table 9, indicates that the AIP variable is significant with a *p* value of .021. This suggests that the lower the level of assets-in-place of a company, the more likely the company is to select an income-increasing technique. However, the direction of the relationship is again the opposite as predicted by Costly Contracting Theory. Thus, H6 is not supported. This study finds that AIP and the IOS affect accounting choices differently. This suggests that ratios based on book values and market values have different impacts on management's choice of accounting policies. This is because book values refer to assets already in place, while Myers (1977) suggests that many firms' market values are accounted for by assets not yet in place such as the present value of future growth opportunities.

Overall, these findings support Thomas's (1991) suggestion that management's choice of corporate financial-reporting practices is affected by the differing constraints on companies. The economic focus of the Costly Contracting Theory variable offers important insights. Some of the company-specific variables related to the theory explain company manager's motivation for accounting choice.

¹⁴ In line with Skinner (1993) and Dhaliwal et al. (1999), this study refers to firms with relatively high levels of assets-in-place as low-growth firms, and those with lower levels as high-growth firms.

¹⁵ Dhaliwal et al. (1999) argues that high-growth firms have more variable earnings, which therefore create greater incentives to reduce earnings variability.

7. Conclusion

Research presented in this paper focuses on an empirical analysis of the effects of firms-specific variables linked to Costly Contracting Theory on management's selection of accounting policies in the Asia Pacific region. A sample of 442 listed companies in five countries in the Asia Pacific region was surveyed to measure the relationship of firm-specific characteristics to the selection of income-increasing (decreasing) accounting techniques. Results of this study provide empirical evidence that the variation of management's choice of accounting policies is explained by country of reporting as well as certain firm-specific variables linked to Costly Contracting Theory.

This study provides evidence of the circumstances under which a company selects a particular accounting method. Companies that pursue income-increasing accounting techniques in their aggregated accounting policies are characterized by lower financial leverage, lower ownership concentration, and higher investment opportunity sets. Industry-group categories also help explain aggregated accounting choices.

Country of reporting demonstrates a very strong effect on accounting-policy choices. Indonesian companies reveal a unique pattern that is significantly different from the other four countries. They use income-decreasing accounting techniques more than any of the other countries studied. Understanding the nature of differences in accounting numbers across companies and especially across nations helps the users of financial accounting information in valuing the companies' performances. Specific accounting rules/regulations can affect the valuation of the firms' performances. Therefore, the findings of this study have important implications for anyone related to the production of financial accounting information such as preparers, financial analysts, other users, and standard setters.

The primary contributions of this study are the important insights it gives about factors that influence management's selection of accounting policies and whether these selections are income-increasing (decreasing) tendencies. The findings of this study provide evidence that since company managers have the discretion to select an accounting method from among a set of acceptable methods, preferences occur for specific reasons. The international movement towards official convergence of financial reporting practices toward IFRS does not necessarily mean that the comparability of the financial statements of companies in the Asia Pacific region will be totally achieved.

Additionally, this study finds that there is a certain pattern of accounting policies used in each industry group. Although not statistically significant these phenomena might lead the standard setters in each country and the IASB to consider narrowing the alternative allowable policies in certain issues. This helps to reduce market inefficiencies (Roberts & Salter, 1999). If companies use a range of different accounting methods, stock market participants may have to devote considerably more resources to analyzing and comparing the companies' financial statements. As with most research, this study has limitations. This study classifies each policy as either income increasing or income decreasing. Several studies have utilized this rating scheme (for example: Bowen et al., 1995; Skinner, 1993). The rationale for using such a rating scheme is that it is impossible to measure the exact effects of the various accounting choices on the financial statement figures.

Various future investigations are possible. Future research could explore more and broader possible motivations of preparers in selecting accounting policies, especially to

explain the strong country effect. Country of reporting could be further examined in future research to explain national accounting differences in the selection of accounting policies among allowable alternatives. These factors could include cultures, legal system, tax law, inflation level, level of economic development, and relationship between business enterprises and providers of capital (Doupnik & Salter, 1995). This study focuses on accounting policies used in the companies' annual reports for a single period. Finally, a longitudinal study will help determine if associations hold over time for firm-specific variables linked to Costly Contracting Theory and management's choice of accounting techniques.

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The effects of the Asian crisis, corporate governance and accounting system on the valuation of book value and earnings

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Abstract

This paper examines the value relevance of earnings and book value in four Asian countries, Indonesia, South Korea, Malaysia and Thailand, in the period surrounding the Asian financial crisis. Specifically, we examine the impact of the economic environment on the value relevance of book value and earnings. We also examine the effects of corporate-governance mechanisms and the type of accounting system together with the economic environment on the value relevance of accounting numbers. Our results indicate that the value relevance of earnings in Indonesia and Thailand was significantly reduced during the Asian financial crisis while the value relevance of book value increased. In Malaysia, the value relevance of both earnings and book value decreased during the crisis. In Korea, neither book value nor earnings was significantly impacted by the crisis. Our results indicate that the level of corporate-governance mechanisms has an impact on the extent of changes in the value relevance of book values, but not earnings. Specifically, the value relevance of book value declines when corporate governance is weak. Finally, our results indicate that accounting systems (i.e., IAS or tax-

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based) also affect the extent of changes in the value relevance of book value resulting from the crisis.

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Keywords: Valuation; Corporate governance; Financial crisis

1. Introduction

This paper examines the effect of the Asian financial crisis on the value relevance of earnings and book value in four Asian countries, Indonesia, Korea, Malaysia and Thailand. Barth, Beaver, and Landsman (1998) find evidence that the relative value relevance of equity book value and net income shifts as the financial health of the firm decreases. First, we extend their analysis of bankrupt firms to examine the value relevance of equity book value and net income in a setting where the overall economy is in financial crisis. Second, we examine the role of corporate-governance mechanisms, interacting with the effect of the economic crisis, on the valuation of equity book value and earnings. Finally, we examine the effect of the interaction between accounting systems and the economic crisis on the valuation of equity book value and earnings.

Bushman and Smith (2001, 240) suggest that cross-country designs represent a powerful setting for investigating issues relating to the economic effects of financial accounting information and corporate governance because of significant cross-country differences in both financial accounting regimes and economic performance. In addition, vast cross-country differences in the legal protection of investors' rights, communication networks, and other institutional characteristics enable researchers to explore how the economic effects of financial accounting information vary with other factors (Bushman & Smith, 2001, 240). Bushman and Smith (2001, 241) argue that future research on the connection between governance use and capital markets use of financial accounting information is important for developing a more complete understanding of the effects of financial accounting information on economic performance. While governance research typically focuses on a particular governance mechanism in isolation, a more complete understanding requires an explicit recognition of the interactions across governance mechanisms (Bushman & Smith, 2001, 286). Therefore, we identify several country-specific institutional factors that influence the total economic effects of financial accounting information, as well as factors that influence the economic effects of financial reporting through its governance role. Since corporate governance is the means by which minority shareholders are protected from expropriation by managers or controlling shareholders (Mitton, 2002), we investigate the mitigating effects of shareholder rights, creditor rights, the rule of law, ownership concentration and audit-report quality on the relation between stock prices and earnings and book value during a financial crisis.

Barth, Beaver, and Landsman (2001, 88–89) state that value-relevance research provides evidence about how accounting amounts are reflected in share prices and thus, can be informative for accounting standards. Three of our sample countries, Indonesia, Malaysia, and Thailand, are classified as IAS (International Accounting Standards) countries while Korea's accounting standards are classified as tax-based. Because IAS are geared toward

investors, whereas tax-code standards are geared toward regulators; we investigate whether the valuation of equity book value and earnings in an economic crisis differs across these two types of accounting systems. We base our research on a sample of 158 firms from Indonesia, 217 firms from Korea, 271 firms from Malaysia, and 389 firms from Thailand. We examine the value relevance of equity book value and earnings one year prior to the crisis (1996) and during the crisis (1997). The financial statement and stock price data are collected from Datastream International. We include measures of the levels of investor protection from LaPorta, Lopez-de-Silanes, Shleifer and Vishny (1998) and assessments of the quality of financial reporting from Saudagaran and Diga (1997). Our results indicate that the value relevance of earnings in Indonesia and Thailand was significantly reduced during the Asian financial crisis while the value relevance of their book value increased. In Malaysia, the value relevance of both earnings and book value decreased during the crisis. In Korea, neither book value nor earnings was significantly impacted by the crisis. The level of corporate-governance mechanisms and the nature of the accounting system influence the extent of the effect of the crisis on the value relevance of equity book value. Specifically, the value relevance of book value appears to decrease when corporate governance is weak. Further, the decrease in the value relevance of book value is greater for countries whose accounting standards are based on International Accounting Standards (IAS) than countries whose accounting standards are based on the tax code. However, neither the level of corporate governance nor the accounting system appears to influence the value relevance of earnings during the Asian financial crisis in the countries we examine.

The remainder of the paper is organized as follows. The next section discusses related prior research and accounting and corporate-governance characteristics in the countries in our sample. The third section contains the hypotheses. The fourth section describes the research design and sample, and the fifth section discusses the results. The final section draws conclusions and summarizes the paper's contribution.

2. Background and prior research

Barth et al. (1998) examine the relative value relevance of equity book value and earnings in a set of firms that are facing bankruptcy. They argue that a firm's equity book value reflects liquidation value and net income reflects unrecognized net assets. As the financial health of a company decreases, liquidation-value effects dominate unrecognized net-asset-valuation effects. Hence, the value relevance of a firm's equity book value increases and the value relevance of net income decreases when the financial health of the firm deteriorates. The Asian financial crisis resulted in the deterioration of the financial health of affected companies. For example, the incidence of negative earnings in the four Asian countries increased because of the financial crisis, and negative earnings are normally perceived to contain large transitory components. We investigate whether the results from the Barth et al. (1998) analysis of bankrupt firms extend to a setting where firms are operating in a financial crisis.

Two studies examine the firm-specific effects of the Asian financial crisis in two countries severely affected by currency devaluations and stock market declines. Graham, King, and Bailes (2000) document a decline in the value relevance of earnings in

Thailand following the devaluation of the Thai Baht, but an increase in the incremental value relevance of book value. Ho, Liu, and Sohn (2001) find evidence that the value relevance of Korean earnings declines during the crisis and its importance is replaced by cash flows from operations as opposed to the book value of equity. Their results hold for a sample of firms that report positive earnings throughout their sample period (1995–1998), and also after controlling for the amount of foreign exchange translation gains and losses included in earnings and book value. These studies suggest that countries may be affected differentially by an economic crisis resulting from currency devaluations and stock market declines.¹

Differences in the value relevance of accounting measures between countries found in prior research may be attributed to differences in accounting systems. Harris, Lang, and Möeller (1994) find that the earnings coefficient in Germany is larger than that in the United States, consistent with a more conservative measurement approach in Germany. In examining the relation between stock prices and accounting information in six Asian countries, Graham and King (2000) find systematic differences in the value relevance of accounting numbers as well as in the relative explanatory power of book value and earnings that appear to be the result of the degree of conservatism across the countries. Ali and Hwang (2000) find that the value relevance of accounting data is lower for Continental model countries than for British-American model countries, and also when tax rules influence financial accounting measurements. In contrast, Ball, Robin, and Wu (2003) find no differences in the property of timeliness of accounting income between countries that have code-law or common-law origins. They demonstrate that the preparers' incentives in each country, which are a function of the extent of political versus market influences, dominate accounting standards as a determinant of financial reporting quality.

2.1. Domestic financial reporting environments

We now provide some background information regarding the accounting environment of the countries in this study. The development of domestic accounting standards in Indonesia, South Korea, Malaysia, and Thailand has been influenced in part by their historical allegiances. Indonesia was a Dutch colony, and early Indonesian Accounting Principles (PAI) were based on Grady's (1965) *Inventory of GAAP for Business Enterprises*. In the late 1980s, Indonesia issued several statements of accounting principles that were based on U.S. GAAP. In September 1994, Indonesia adopted 21 International Accounting Standards (IAS) that were renamed "Indonesian Financial Accounting Standards" and made mandatory for all publicly listed companies (Saudagaran & Diga, 2000, 8).

The regulatory framework of Korean accounting and financial reporting has been influenced by U.S. laws and practices since the Second World War. Korean accounting standards also take account of IAS. However, they are strongly influenced by tax laws (Nobes & Parker, 1995, 316). Accounting in Korea has a continental European influence modified by a U.S. influence (Nobes & Parker, 1995, 319).

¹ Mitton (2002) defines the crisis period as July 1997 through August 1998. He reports that the countries in our sample experienced stock returns ranging from –52.1% in Thailand to –79.0% in Malaysia and currency depreciation ranging from –34.5% in Korea to –78.0% in Indonesia during the crisis.

Malaysia was a British colony and has historically looked to the United Kingdom in setting its domestic accounting standards. After the International Accounting Standards Committee's (IASC) formation in 1973, Malaysia was one of the earliest countries in the Association of Southeast Asian Nations (ASEAN) to adopt IASC standards. In Malaysia, most IAS are adopted as "Approved Accounting Standards" (Saudagaran & Diga, 2000, 8).

Accounting standards in Thailand are based generally on U.S. GAAP but also incorporate concepts from the United Kingdom and Germany (especially the concept of *prudence*). More recently, Thailand gradually began to adopt IAS promulgated by the IASC. Presently, 17 of 23 Thai accounting standards are based on IAS (Saudagaran & Diga, 2000, 8).

We examine the value relevance of book value and earnings in these four Asian countries that are moving towards harmonized accounting practices through the adoption of IAS, but yet still have differences in the enforcement of these standards. Prior studies show that there are significant differences in the information content and timeliness of earnings between countries (e.g., Alford, Jones, Leftwich, & Zmijewski, 1993; Ball et al., 2003). However, a proper valuation model can greatly mitigate accounting-diversity problems in international valuations (Frankel & Lee, 1996). Frankel and Lee (1996) find that the Edwards–Bell–Ohlson (EBO) model is useful in explaining cross-sectional stock prices in different countries. The model that we use in our paper is based on Barth et al. (1998), which is an adaptation of the EBO model.

2.2. *Corporate governance*

The countries also differ with respect to their corporate-governance mechanisms. LaPorta, Lopez-de-Silanes, Shleifer and Vishny (2000) classify Indonesia and South Korea as civil-law countries, and Malaysia and Thailand as common-law countries. Minority-shareholder rights are highest in Malaysia and lowest in Indonesia (Johnson, Boone, Breach & Friedman, 2000). Anti-director rights are similar in Indonesia, Korea, and Thailand and higher in Malaysia (Johnson et al. 2000; LaPorta et al. 1998). There is clearly a link between corporate governance and financial reporting (Sloan, 2001; Ball et al., 2003). Bushman and Smith (2001) propose that research should exploit cross-country differences in financial reporting and governance regimes. Hence, we examine whether differences in corporate governance influence the relative value relevance of the book value of equity and earnings of firms in these countries during the financial crisis.

3. *Hypotheses*

We hypothesize that the Asian crisis, which led to deterioration in Asian economies, will differentially impact the value relevance of book values and net income in Indonesia, Korea, Malaysia, and Thailand. Our first hypothesis regarding the overall impact of the crisis on the value relevance of book value and earnings relates to the results from Barth et al. (1998) who document that the relative explanatory power of book value and net income is a function of financial health. That is, as financial health decreases, the explanatory

power of book value increases while the explanatory power of net income decreases. Our first hypothesis, stated in alternative form is:

H1a. The value relevance of equity book value increases while the value relevance of net income decreases as the economic environment deteriorates.

Second, we examine whether the impact of the crisis on the value relevance of accounting numbers is a function of the corporate governance mechanisms within the country. Bushman and Smith (2001) suggest that we may expect to see firms shift towards the use of more costly performance measures when accounting information has limited usefulness. For example, in countries where the accounting and legal systems provide relatively poor investor protection from managerial opportunism, there is a substitution toward costly monitoring by large shareholders. Corporate governance could become more critical in a financial crisis if managers are led to expropriate more as the expected return on investment falls or if the crisis causes investors to recognize and react to weakness in corporate governance that existed all along (Mitton, 2002). Therefore, we examine the effect of the interaction between corporate governance and the economic situation on the value relevance of equity book value and earnings. When corporate governance is weak, we expect the accounting numbers to have relatively less usefulness during the crisis. Hence, we expect the value relevance of accounting numbers to be lower when corporate governance is weaker. This leads to our second hypothesis:

H2a. In a financial crisis, the value relevance of book value and earnings decreases when corporate governance (shareholder rights, creditor rights, rule of law, ownership and audit-report quality) is weak.

Value-relevance research provides evidence about how accounting amounts are reflected in share prices, and, thus, can be informative about accounting standards (Barth et al., 2001). Differences in the value relevance of accounting measures between countries may be attributed to differences in accounting systems (Harris et al., 1994; Graham & King, 2000; Ali & Hwang, 2000). Accounting standards in Indonesia, Malaysia, and Thailand are based on IAS while those in Korea are tax-based. IAS are market-based while the tax code is politically based (Ball et al., 2003). Therefore, we might expect the accounting system to affect the extent of changes in the value relevance of accounting information during a crisis. Ali and Hwang (2000) find that the value relevance of accounting data is lower when tax rules influence accounting measurements. Following evidence in Ali and Hwang (2000), we would expect value relevance to be relatively higher during the crisis in countries that base financial reporting and disclosure on IAS (Indonesia, Malaysia and Thailand) than in countries that observe the tax code (Korea). However, Ho et al. (2001, 207) report that Korea allows asset revaluations. Since this practice results in book value of net assets that are closer to market value, Korea's accounting may help the book value fare better during the crisis. Therefore, our last hypothesis is non-directional and is stated in the alternative form:

H3a. The value relevance of book value and earnings generated from IAS-based accounting differs from the value relevance of accounting information generated by a tax-based accounting system during a financial crisis.

4. Research design and methodology

4.1. Corporate governance and accounting systems

LaPorta et al. (1998) assess investors' protections using various corporate-governance mechanisms. The mechanisms include shareholder rights, creditor rights, the rule of law, and ownership (by the three largest shareholders). Indonesia, Korea, and Thailand have similar scores for shareholder rights while Malaysia has relatively higher levels of shareholder rights' protections. Creditor rights include the existence of restrictions for going into reorganization and the level of legal reserve required as a percentage of capital. The rule of law captures the level of enforcement of investor-protection laws. This variable includes factors like the efficiency of the judicial system, the risk of appropriation, and the level of perceived corruption in the country. The final governance variable is the level of ownership concentration of public companies. Ownership measures the ownership stake of the three largest shareholders in the ten largest (market capitalization) publicly traded companies in the country. LaPorta et al. (1998) report that companies in countries with

Table 1
Corporate governance and financial reporting measures

Panel A: corporate governance measures

Raw scores

Country	Shareholder rights	Creditor rights	Rule of law (enforcement)	Mean ownership (3 largest shareholders)	Audit-report quality
Indonesia	3.10	4.00	21.88	0.58	0
Korea	4.20	3.50	33.55	0.23	1
Malaysia	8.10	4.00	38.54	0.54	0
Thailand	4.05	3.10	29.67	0.47	1

Panel B: country rankings by governance measure

Rank scores

Country	Shareholder rights	Creditor rights	Rule of law (enforcement)	Mean ownership (3 largest shareholders)	Audit-report quality	Composite governance score
Indonesia	4	1	4	4	3	16
Korea	2	3	2	1	1	9
Malaysia	1	1	1	3	3	9
Thailand	3	4	3	2	1	13

Panel C: empirical values of governance and financial reporting measures

Country	Corporate governance	Accounting standards (IAS vs. tax)
Indonesia	4	1
Korea	1	0
Malaysia	1	1
Thailand	3	1

poor investor protection usually have more concentrated ownership. Table 1, panel A reports the raw scores for these corporate governance mechanisms by our sample countries as obtained in LaPorta et al. (1998). The score on audit-report quality is obtained from Saudagaran and Diga (1997). This measure captures the means for outsiders to monitor financial reporting by the firms.

Because it is not clear how the absolute values of the variables relate to capital market valuations, we rank-transform these measures. Panel B provides the country ranks of each of these governance measures. In terms of shareholder rights, Malaysia has the highest raw score (8.10) and is ranked number 1, Korea number 2, Thailand number 3 and Indonesia number 4. This ranking procedure is repeated for creditor rights, rule of law, ownership, and audit-report quality. For each country, we add the rankings thus obtained for each governance measure to derive a composite governance score. Korea and Malaysia have a composite governance score of 9, Thailand 13, and Indonesia 16. A lower score indicates better corporate governance. Thus, Korea and Malaysia have better corporate governance (assigned an empirical value of one) than Thailand (assigned an empirical value of three), which has better corporate governance than Indonesia (assigned an empirical value of four). One limitation of our study is that the financial statement and market data, on the one hand, and the corporate governance data, on the other hand, are probably from different years. We concede that this limitation may result in less powerful tests of corporate governance effects on value relevance.

Notes to Table 1:

The shareholder rights variable is from LaPorta et al. (1998, 1130). It is the composite score from the following six discrete measures which take on a value of one if the protection is in the law and zero otherwise: (1) one share-one vote; (2) shareholders are allowed to mail their proxy vote to the firm; (3) shareholders are not required to deposit their shares prior to the general shareholders' meeting; (4) cumulative voting or proportional representation of minorities on the board of directors is allowed; (5) an oppressed-minorities mechanism is in place; (6) there is a preemptive right to new issues. Additionally, the variable includes two continuous measures: the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting, plus an anti-director rights index. The total score ranges from zero to 12 (most rights).

The creditor rights variable is from LaPorta et al. (1998, 1136). It is the composite score from the following four discrete measures which take on a value of one if the protection is in the Law and zero otherwise: (1) no automatic stay on assets; (2) secured creditors are paid first; (3) restrictions for going into reorganization; (4) management does not stay in reorganization. Additionally, there is one continuous measure: the level of legal reserve required as a percentage of capital.

The rule of law variable is from LaPorta et al. (1998, 1142). It is the composite score from the following five measures which take on values ranging from one to ten: (1) efficiency of the judicial system; (2) an assessment of the law and order tradition in the country produced by the country risk-rating agency International Country Risk; (3) corruption; (4) risk of appropriation; and (5) risk of contract repudiation.

The ownership variable is from LaPorta et al. (1998). It consists of the combined ownership stake of the three largest shareholders in the ten largest (market capitalization) nonfinancial, domestic, totally private, publicly traded companies in each country in the sample.

The audit-report quality variable is from Saudagaran and Diga (1997). It indicates that Korea and Thailand have audit reports of above average quality and those from Indonesia and Malaysia are average or below.

The composite governance score is the sum of the rank-transformed values from the five corporate governance measures described above. The ranks measure the relative strength of governance and values range from one (strong governance) to four (weak governance).

The accounting standards variable is from Saudagaran and Diga (1997). It is an indicator variable taking on the value of one for countries with accounting standards based on International Accounting Standards (Indonesia, Malaysia and Thailand) and zero for those based on the tax code (Korea).

We also examine the role of the accounting systems in mitigating the effects of the economic crisis on the valuation of equity book value and earnings. The objective of IAS is to generate financial information that is useful in determining a firm's value, i.e., transparent financial information (International Accounting Standards Committee, 1999). Accounting standards that are primarily based on the tax code are not geared toward investors, but regulators. Therefore, countries' whose accounting standards are more aligned with IAS, are more likely to communicate the underlying economic value of firms to investors. Three of our sample countries, Indonesia, Malaysia, and Thailand are classified as IAS countries while Korea's accounting standards are classified as tax based. Table 1, panel C presents the empirical values of governance and financial-reporting measures that we use in our analyses.

4.2. Methodology

We employ a methodology similar to that in Barth et al. (1998) to examine the value relevance of book value of equity and net income. The market value of equity is regressed on book value of equity and net income. Model (1) includes an indicator variable to examine the effect of the economic environment (the effect of the crisis) on the valuation of earnings and book value. Initially, we estimate the following regression to ascertain the effect of the crisis on the earnings and book value coefficients:

$$MVS_{it} = \alpha_0 + \alpha_1 I + \alpha_2 BVS_{it} + \alpha_3 I^* BVS_{it} + \alpha_4 EPS_{it} + \alpha_5 I^* EPS_{it} + \varepsilon_{it} \quad (1)$$

where MVS_{it} is the market value of equity per share of company i on March 31 at year $t + 1$; I is an indicator variable equal to zero in 1996 and one in 1997 (the year of the Asian financial crisis); BVS_{it} is book value per share of company i at December 31 in year t ; and EPS_{it} is earnings per share of company i over the period ending on December 31 in year t .²

Hayn (1995) finds that the return-earnings relation for firms reporting losses is weaker than that for firms reporting profits. The price-earnings relation is also not homogeneous across loss and profit firms. To investigate the differential effects of losses and profits on value relevance, we next classify the observations according to whether net income was positive or negative, and whether book value of equity was positive or negative. $NEGNI$ is an indicator variable taking the value of one if the firm had negative net income, and zero otherwise. $NEGBVS$ is an indicator variable taking the value of one if the firm had negative book value of equity, and zero otherwise. Table 2 presents the incidences of negative earnings and book value in our sample. In 1996, the year before the crisis, the percentages of firms reporting negative net income were Indonesia at 3.80, Korea at 19.82, Malaysia at 7.38, and Thailand at 17.48. The financial crisis of 1997 resulted in more incidences of negative earnings. The percentages in 1997 were Indonesia at 33.54, Korea at 36.87, Malaysia at 25.09, and Thailand at 47.81. The incidences of negative book value also increased after the crisis. The percentages for 1997 were Indonesia at 3.16, Korea at 6.45, Malaysia at 1.11, and Thailand at 11.83, compared with 0.63, 2.30, 0.00 and 0.77, respectively, in 1996.

² We also estimate the regressions using the year-end values for the market value of equity per share. The results are essentially the same as those reported.

Table 2
Incidence of negative earnings and book value

Variable	Country	Number of observations	1996		1997	
			Number with negative values	% of firms with negative values	Number with negative values	% of firms with negative values
NEGNI	Indonesia	158	6	3.80	53	33.54
	Korea	217	43	19.82	80	36.87
	Malaysia	271	20	7.38	68	25.09
	Thailand	389	68	17.48	186	47.81
NEGBVS	Indonesia	158	1	0.63	5	3.16
	Korea	217	5	2.30	14	6.45
	Malaysia	271	0	0.00	3	1.11
	Thailand	389	3	0.77	46	11.83

Variable definitions: NEGNI is negative net income; NEGBVS is negative book value of equity.

In Model (2), we regress market value of equity on book value of equity and net income, controlling for the effects of negative book value and negative net income.

$$\begin{aligned} MVS_{it} = & \beta_0 + \beta_1 NEGBVS_{it} + \beta_2 NEGNI_{it} + \beta_3 BVS_{it} + \beta_4 NEGBVS * BVS_{it} \\ & + \beta_5 EPS_{it} + \beta_6 NEGNI * EPS_{it} + e_{it} \end{aligned} \quad (2)$$

where NEGBVS is an indicator variable equal to one if book value of equity is negative and zero otherwise; NEGNI is an indicator variable equal to one if net income is negative and zero otherwise; and all other variables are as previously defined.

We next estimate the impact of the strength of a country's corporate-governance mechanisms on the extent of changes in the value relevance of earnings and book value during the Asian financial crisis in Model (3).

$$\begin{aligned} MVS_{it} = & \beta_0 + \beta_1 I + \beta_2 BVS_{it} + \beta_3 I * BVS_{it} + \beta_4 CG * I * BVS_{it} + \beta_5 EPS_{it} \\ & + \beta_6 I * EPS_{it} + \beta_7 CG * I * EPS_{it} + e_{it} \end{aligned} \quad (3)$$

where CG is our empirical measure of corporate governance that represents shareholder rights, creditor rights, rule of law, ownership concentration, and audit-report quality, and all other variables are as previously defined. Our focus is on β_4 and β_7 . If weak corporate governance contributes to the decline in value relevance for accounting information then β_4 and β_7 will be significantly negative.³

Our final analysis investigates whether the use of IAS or the tax code as a basis for accounting standards had any impact on the extent of the change in the value relevance of earnings and book value during the crisis:

$$\begin{aligned} MVS_{it} = & \beta_0 + \beta_1 I + \beta_2 BVS_{it} + \beta_3 I * BVS_{it} + \beta_4 AC * I * BVS_{it} + \beta_5 EPS_{it} \\ & + \beta_6 I * EPS_{it} + \beta_7 AC * I * EPS_{it} + e_{it} \end{aligned} \quad (4)$$

³ Our measure for the relative strength of governance ranges from one (strong governance) to four (weak governance)

where AC is an indicator variable taking on the value of one for countries with accounting standards based on International Accounting Standards (Indonesia, Malaysia and Thailand) and zero for those based on the tax code (Korea); and all other variables are as previously defined.

4.3. Sample

The sample consists of firms from Indonesia, Korea, Malaysia, and Thailand for which all required data are available. The market value of equity, book value of equity, and net income data are obtained from Datastream Research Service. Datastream is a database of economic, company, and financial data. The sample period is 1996 and 1997. The sample consists of 1035 firms (across two years): 158 from Indonesia, 217 from Korea, 271 from Malaysia, and 389 from Thailand.

Table 3 provides descriptive statistics of the market value of equity, book value of equity, and earnings per share of the sample firms across countries. The values are all in U.S. dollars per share. The Korean sample has the highest average market value of equity (\$26.27) and book value of equity (\$21.93) in 1996. The sample from Thailand has the second highest book value of equity (\$3.67) but it has a lower market value (\$1.90). This would seem to indicate that the book value of the Thailand sample is overstated. The Korean sample has the highest earnings per share in 1996 (\$0.58) and the Indonesian sample has the lowest (\$0.08).

In 1997, as the Asian financial crisis took hold of the economies of the countries included in the sample, all four countries suffered reduced profitability and lower market and book values. Korea continues to have the highest average market value and book value of equity per share (\$8.73 and \$10.30, respectively), but the amounts are less than half their values in 1996. Three of the four countries (Indonesia, Korea, and Thailand)

Table 3
Descriptive statistics

Variable	Country	N	1996			1997			Paired <i>t</i> -test	Wilcoxon rank
			Mean	SD	Median	Mean	SD	Median	<i>t</i> (<i>p</i> -value)	sum test
MVS (US\$)	Indonesia	158	0.940	1.383	0.582	0.350	0.861	0.135	4.54 (0.00)	11.47 (0.00)
	Korea	217	26.270	26.427	19.891	8.729	12.218	4.768	8.87 (0.00)	11.82 (0.00)
	Malaysia	271	3.704	3.296	2.968	0.889	2.125	0.512	11.82 (0.00)	17.97 (0.00)
	Thailand	389	1.901	2.690	1.004	0.715	1.266	0.303	7.86 (0.00)	12.68 (0.00)
BVS (US\$)	Indonesia	158	0.796	2.004	0.366	0.670	2.127	0.149	0.542 (0.59)	8.34 (0.00)
	Korea	217	21.929	24.106	16.559	10.295	14.314	8.437	6.11 (0.00)	8.66 (0.00)
	Malaysia	271	0.808	0.429	0.732	0.593	0.387	0.526	6.10 (0.00)	7.69 (0.00)
	Thailand	389	3.673	10.406	1.124	1.190	4.302	0.374	4.35 (0.00)	10.42 (0.00)
EPS (US\$)	Indonesia	158	0.076	0.135	0.044	−0.003	0.084	0.009	6.28 (0.00)	9.74 (0.00)
	Korea	217	0.584	3.875	0.648	−0.613	3.607	0.116	3.33 (0.00)	6.60 (0.00)
	Malaysia	271	0.104	0.101	0.091	0.021	0.216	0.039	5.73 (0.00)	8.95 (0.00)
	Thailand	389	0.147	0.353	0.104	−0.079	0.575	0.003	6.59 (0.00)	10.12 (0.00)

Variable definitions: MVS is market value of equity per share; BVS is book value per share; EPS is earnings per share.

move from profitability to losses in 1997. The mean and median values of all of the variables, except for the average book value per share in Indonesia, are statistically significantly lower in 1997 than in 1996.

5. Results

In Table 4, we present the effect of the Asian financial crisis on the relative value relevance of book value of equity and net income. The increment to the intercept, α_1 , which captures the effect of the crisis year, is negative and significant for all country estimations except Indonesia. In the case of Indonesia, the coefficient is positive, but it is not significantly different from zero. The coefficients on book value per share (α_2) and earnings per share (α_4) are positive and significant in all cases, except for the book value of equity in the Indonesia estimation. It appears that in Indonesia, book value is not related to market values before the crisis, but the value relevance of book value increases marginally during the crisis (α_3).

Table 4

Pooled regression of market value of equity on book value of equity and net income, using fixed-effects estimation with fixed-year effects

	$MVS_{it} = \alpha_0 + \alpha_1 I + \alpha_2 BVS_{it} + \alpha_3 I * BVS_{it} + \alpha_4 EPS_{it} + \alpha_5 I * EPS_{it} + \varepsilon_{it}$						(1)	
	α_0	α_1	α_2	α_3	α_4	α_5	Adj. R^2	Obs.
<i>Indonesia</i>								
Coefficient	0.22	0.08	0.01	0.07	9.25	−4.44	0.70	316
(<i>t</i> -statistic)	(3.81)	(1.06)	(0.41)	(1.68)	(17.31)	(−5.45)		
<i>p</i> -value	0.00	0.29	0.68	0.09	0.00	0.00		
<i>Korea</i>								
Coefficient	14.96	−10.22	0.49	−0.07	0.99	−0.54	0.38	434
(<i>t</i> -statistic)	(9.14)	(−4.47)	(9.09)	(−0.71)	(2.96)	(−1.09)		
<i>p</i> -value	0.00	0.00	0.00	0.48	0.00	0.28		
<i>Malaysia</i>								
Coefficient	1.20	−0.98	2.59	−1.46	3.96	−4.04	0.31	542
(<i>t</i> -statistic)	(3.57)	(−2.13)	(5.73)	(−2.24)	(2.07)	(−1.93)		
<i>p</i> -value	0.00	0.03	0.00	0.02	0.04	0.05		
<i>Thailand</i>								
Coefficient	1.09	−0.42	0.02	0.06	5.13	−4.52	0.46	778
(<i>t</i> -statistic)	(11.88)	(−3.36)	(2.10)	(3.15)	(21.90)	(−16.46)		
<i>p</i> -value	0.00	0.00	0.04	0.00	0.00	0.00		
<i>Pooled</i>								
Coefficient	3.32	−2.33	0.60	−0.10	1.03	−0.83	0.42	2070
(<i>t</i> -statistic)	(10.47)	(−5.20)	(29.11)	(−2.45)	(5.94)	(−3.35)		
<i>p</i> -value	0.00	0.00	0.00	0.01	0.00	0.00		

Variable definitions: MVS_{it} is market value of equity per share of company i at time t ; I is an indicator variable equal to zero in 1996 and one in 1997; BVS_{it} is book value per share of company i at time t ; EPS_{it} is earnings per share of company i over the period ending at time t .

Table 5

Pooled regression of market value of equity on book value and net income, controlling for negative book value and negative net income

$$MVS_{it} = \beta_0 + \beta_1 NEGBVS_{it} + \beta_2 NEGNI_{it} + \beta_3 BVS_{it} + \beta_4 NEGBVS*BVS_{it} + \beta_5 EPS_{it} + \beta_6 NEGNI*EPS_{it} + \varepsilon_{it} \tag{2}$$

	β_0	β_1	β_2	β_3	β_4	β_5	β_6	Adj. R^2	Obs.
Coefficient	1.46	−1.13	−0.86	0.45	−0.39	5.00	−5.54	0.51	2070
(<i>t</i> -statistic)	(6.12)	(−1.00)	(−1.79)	(22.66)	(−5.17)	(19.26)	(−18.34)		
<i>p</i> -value	0.00	0.32	0.07	0.00	0.00	0.00	0.00		

Variable definitions: MVS_{it} is market value of equity per share of company i at time t ; $NEGBVS_{it}$ is an indicator variable taking on the value of one for firms with negative book value and zero otherwise; $NEGNI_{it}$ is an indicator variable taking on the value of one for firms with negative net income and zero otherwise; BVS_{it} is book value per share of company i at time t ; EPS_{it} is earnings per share of company i over the period ending at time t .

Following Barth et al. (1998), we hypothesize that the value relevance of equity book value increases and the value relevance of net income decreases as the economic environment deteriorates. That is, we predict α_3 to be positive and α_5 to be negative. The results for the increase in the value relevance of book value hold for Thailand ($\alpha_3=0.06$, $t=3.15$) and marginally for Indonesia ($\alpha_3=0.07$, $t=1.68$). Contrary to H1a, the value relevance of book value declined for Malaysia ($\alpha_3=-1.46$, $t=-2.24$). The results for the deterioration in the value relevance of income hold for Indonesia ($\alpha_5=-4.44$, $t=-5.45$), Malaysia ($\alpha_5=-4.04$, $t=-1.93$), and Thailand ($\alpha_5=-4.52$, $t=-16.46$). This implies that the value relevance of income has declined for Indonesia, Malaysia, and Thailand from 1996 to 1997. Table 2 shows that Malaysia has the lowest incidence of negative earnings and book value. The returns-earnings and price-earnings relations are expected to be stronger for firms reporting profits (Hayn, 1995). Based on the data in Tables 1 and 2, there is no reason to believe that the valuation of both book value and earnings in Malaysia should significantly decrease during the crisis. The only evidence we can find is in Mitton (2002), which indicates that Malaysia had more negative stock returns during the crisis and larger market-to-book ratios prior to the crisis than the other countries included in our sample. This would suggest that the Malaysian stock market was relatively overvalued prior to the crisis.

Both coefficients for Korea are negative, but insignificant. Ho et al. (2001) also document negative coefficients. However, both coefficients are significant in their estimation (Table 6, regression 7). A different sample composition and power of the tests may contribute to the difference in results.⁴ Our evidence suggests that the economic crisis had no effect on the value relevance of book value of equity and net income of firms in Korea.

⁴ Ho et al. (2001) use data for 429 sample firms collected directly from the Korean Stock Exchange over four sample years. The larger sample size increases the power of their test and makes it easier to find significant results.

The pooled results indicate that the crisis reduced market values across all four countries. Additionally, the pooled results suggest that the valuation of earnings declined during the crisis as well as the valuation of book value. However, the pooled results mask the variation across countries, which we hypothesize to be related to the differing levels of corporate governance and different accounting systems in the sample countries.⁵

Overall, our results are consistent with the findings by Graham et al. (2000) regarding the effect of the Asian financial crisis on Thailand. Our results also support Barth et al. (1998) in the case of Indonesia and Thailand in that the valuation of book value increases when firms are in financial crisis. Our results from Korea and Malaysia, however, are inconsistent with the results in Barth et al. (1998). Therefore, the results from the examination of U.S. firms in financial distress do not appear to generalize to firms in all countries experiencing an economy-wide financial crisis.

Table 5 presents the results of the effects of negative book value and negative income on the relative value relevance of book value of equity and net income. The estimation is pooled across the countries with indicator variables for negative book value and negative income, and interaction of these indicator variables with book value of equity and net income. Negative net income has a marginally significant impact on valuation ($\beta_2 = -0.86$, $t = -1.79$). The coefficients on book value per share (β_3) and earnings per share (β_5) are positive and significant. The coefficient on the interaction between negative book value and book value is negative and significant ($\beta_4 = -0.39$, $t = -5.17$). Firms with negative net income have less value-relevant earnings; the coefficient on the interaction between negative income and earnings is negative and significant ($\beta_6 = -5.54$, $t = -18.34$).⁶

The results thus far indicate that the financial crisis (Table 4) and negative book value and negative income (Table 5) are associated with lower value relevance of book value and earnings. We combine the models in Tables 4 and 5 to include a financial crisis indicator variable, interactions of financial crisis with book value and earnings, interaction of a negative book value indicator with book value, and interaction of a negative income indicator with earnings in examining the value relevance of book value and earnings.⁷ The results (not reported) indicate that the coefficients on the interactions between negative book value and book value, and negative net income and earnings, are still significantly negative. However, the coefficients on the interactions between the financial-crisis indicator and book value and earnings are no longer significant. It would be expected that the incidence of negative book value and negative income is correlated with the financial crisis. Hence, the following analyses do not include financial-crisis indicator and negative

⁵ We also perform an *F*-test to examine whether BVS and EPS are significant in 1997. The results indicate that BVS is significant in Malaysia at the 0.02 level and in the other countries and pooled results at the 0.00 level. EPS is significant in Indonesia and Thailand at the 0.00 level, but insignificant in the Korea, Malaysia, and pooled results.

⁶ *F*-tests also reveal that negative book value and earnings are not significantly associated with market value of equity.

⁷ The model is as follows:

$$\begin{aligned} MVS_{it} = & \beta_0 + \beta_1 I + \beta_2 BVS_{it} + \beta_3 I * BVS_{it} + \beta_4 NEGBVS * BVS_{it} + \beta_5 EPS_{it} + \beta_6 I * EPS_{it} \\ & + \beta_7 NEGNI * EPS_{it} + \varepsilon_{it}. \end{aligned}$$

book value and negative income in the same models. Since the paper focuses on the impact of financial crisis on the value relevance of book value and earnings, we choose to include the financial-indicator variable in the models.

Descriptive data on the degree to which the very existence and operation of control mechanisms vary across countries hold enormous potential. Not only would such data provide useful insights into how financial accounting mechanisms, which can serve a governance role, vary around the world, but it could also be used for testing complementarities between high-quality financial-accounting regimes and high-quality control mechanisms in promoting economic efficiency (Bushman & Smith, 2001, 289).

In Table 6, panel A, we examine the impact of the interaction between the economic environment and corporate governance on the value relevance of book value and earnings. The estimation is pooled across the countries with indicator and interaction variables capturing the effects of the economic crisis and governance on the value relevance of book value and earnings.⁸ The results indicate that the crisis reduced market values overall ($\beta_1 = -2.25$, $t = -5.05$). The crisis had an impact on the valuation of book value. The coefficient on the interaction between the crisis and book value is significant ($\beta_3 = 0.45$, $t = 3.41$). Further, the level of corporate governance influences the effect of the financial crisis on the value relevance of book value. The coefficient on the interaction between corporate governance, crisis, and book value is significantly negative ($\beta_4 = -0.25$, $t = -4.46$). In a financial crisis, the value relevance of book value decreases when corporate governance is weak.⁹ The value relevance of earnings decreases marginally during the crisis. The coefficient on the interaction between the crisis and earnings is negative and significant at the 10 percent level ($\beta_7 = -1.50$, $t = -1.66$). The level of corporate governance has no impact on earnings given that the crisis occurred (β_7 is insignificant). We find partial support for H2a; there is evidence that the value relevance of book value decreases when corporate governance is weaker in a financial crisis. These results demonstrate that the cross-country differences in the effect of the crisis on the value relevance of book value and earnings are linked to the underlying differences in corporate-governance systems.

Panel B of Table 6 reports the results of our analysis of the effect of accounting systems on the valuation of equity book value and earnings during a crisis. The results here indicate that the valuation of book value ($\beta_3 = -0.05$, $t = -1.23$) is not significantly different during the crisis. However, the valuation of earnings ($\beta_6 = -0.89$, $t = -3.54$) is significantly lower during the crisis. Additionally, countries with accounting standards based on IAS saw a greater decline in the value relevance of book value ($\beta_4 = -0.51$, $t = -4.66$) during the financial crisis than countries that observe accounting standards based on the tax code. The type of accounting system did not affect the value relevance of earnings given that the crisis occurred (β_7 is insignificant). An explanation for this result may be found in Ho et al. (2001, 207) who report that Korea allows asset revaluations. This practice results in book value of net assets that are closer to market value and helps the book value to fare better during the crisis. Specifically, Korea's market-adjusted book value fare better during the crisis than those in Indonesia, Malaysia, and Thailand.

⁸ We are grateful to an anonymous reviewer for suggesting this estimation and explanation.

⁹ Note that our measure of corporate governance ranges from one (strong governance) to four (weak governance).

Table 6
Pooled regression of market value of equity on book value and net income, controlling for financial crisis and corporate governance (or accounting standards)

Panel A: corporate governance

$$MVS_{it} = \beta_0 + \beta_1 I + \beta_2 BVS_{it} + \beta_3 I * BVS_{it} + \beta_4 CG * I * BVS_{it} + \beta_5 EPS_{it} + \beta_6 I * EPS_{it} + \beta_7 CG * I * EPS_{it} + \varepsilon_{it} \quad (3)$$

	β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	Adj. R^2	Obs.
Coefficient	3.32	-2.25	0.60	0.45	-0.25	1.03	-1.50	0.30	0.42	2070
(<i>t</i> -statistic)	(10.52)	(-5.05)	(29.23)	(3.41)	(-4.46)	(5.97)	(-1.66)	(0.73)		
<i>p</i> -value	0.00	0.00	0.00	0.01	0.00	0.00	0.10	0.47		

Panel B: accounting standards

$$MVS_{it} = \beta_0 + \beta_1 I + \beta_2 BVS_{it} + \beta_3 I * BVS_{it} + \beta_4 AC * I * BVS_{it} + \beta_5 EPS_{it} + \beta_6 I * EPS_{it} + \beta_7 AC * I * EPS_{it} + \varepsilon_{it} \quad (4)$$

	β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	Adj. R^2	Obs.
Coefficient	3.32	-2.10	0.60	-0.05	-0.51	1.03	-0.89	0.66	0.42	2070
(<i>t</i> -statistic)	(10.52)	(-4.69)	(29.23)	(-1.23)	(-4.66)	(5.97)	(-3.54)	(0.82)		
<i>p</i> -value	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.41		

Variable definitions: MVS_{it} is market value of equity per share of company i at time t ; I is an indicator variable equal to zero in 1996 and one in 1997; BVS_{it} is book value per share of company i at time t ; EPS_{it} is earnings per share of company i over the period ending at time t ; CG is an empirical value of corporate governance. We construct a composite corporate governance score that is the sum of the transformed values from the following corporate governance measures: shareholder rights, creditor rights, rules of law, ownership concentration in LaPorta et al. (1998); and audit-report quality in Saudagaran and Diga (1997). The empirical values for the countries in our sample range from one (strong governance) to four (weak governance); AC is an indicator variable taking on the value of one for countries with accounting standards based on International Accounting Standards (Indonesia, Malaysia, and Thailand) and zero for those based on the tax code (Korea). More information about the measurement of the corporate governance and accounting variables is provided in Table 1.

Overall, the Table 6 results are consistent with Barth et al. (1998) in that the value relevance of the book value of equity increases during the crisis while that of earnings declines. However, book values do decline during a crisis when corporate-governance mechanisms are weak, or when accounting standards are based on IAS.

5.1. Additional analyses¹⁰

We re-estimate the regression in Table 6 and add four control variables in each equation: $NEGBVS * I * BVS$, $NEGBVS * I * BVS * CG$ (or AC), $NEGNI * I * NI$ and $NEGNI * I * NI * CG$ (or AC). The pattern of results is unaltered.

We further examine whether the observed differences in the value relevance of accounting information between 1996 and 1997 are attributable to the Asian financial

¹⁰ We are grateful to a reviewer for suggesting these analyses.

crisis and not some other factors. We run the basic earnings and book value model (Model (1) without year indicators) from 1995 to 2000 for our sample.

$$MVS_{it} = \alpha_0 + \alpha_2BVS_{it} + \alpha_4EPS_{it} + \varepsilon_{it} \tag{5}$$

The coefficients for BVS and EPS are listed below. The only significant year-to-year changes observed are for 1996–1997 and 1997–1998. The decline in the value relevance of EPS in 1996–1997 is reversed in 1997–1998. However, there is a decline in the valuation of BVS in 1998 and the decrease in the coefficient does not reverse. These results lend further support to our findings that the decline in the value relevance of earnings resulted from the deteriorating economic environment caused by the Asian financial crisis of 1997. The evidence indicates that the value relevance of earnings increases after the crisis period.¹¹

We also examine whether there is multicollinearity among the variables, and the effect, if any, on our results. We calculate the condition indices for each regression (see Belsley,

	1995	1996	1997	1998	1999	2000
BVS	0.58	0.60	0.49	0.22	0.23	0.25
EPS	1.05	1.03	0.20	1.09	0.86	0.71

Kuh & Welsch, 1980). These indices measure the degree of collinearity among regression variables. Belsley et al. (1980) suggest that severe collinearity is diagnosed for a maximum-condition index over 30. The maximum-condition index in all the regressions is 12.99, and most are well below this level.

6. Summary and conclusion

The purpose of this research is to assess the changes in the value relevance of earnings and book value in the four countries most affected by the Asian financial crisis: Indonesia, Korea, Malaysia, and Thailand. We investigate the role of the countries' corporate-governance mechanisms and accounting systems in determining the extent of the effect of the crisis on the value relevance of earnings and book value. Consistent with prior research, we find that the value relevance of earnings and book value changes during the Asian financial crisis in Indonesia, Malaysia, and Thailand. Overall, the evidence is consistent with the results from a sample of U.S. firms facing bankruptcy. Generally, the value relevance of the book value of equity increases while the value relevance of earnings declines depending on the corporate-governance mechanisms and the accounting system in the country. Our findings provide partial support for our hypotheses that the extent of the change in value relevance is related to the countries' corporate-governance mechanisms and accounting system. Overall, we provide evidence that the extent of shifts in the value relevance of book value is not just a function of firm-specific financial health and macroeconomic environment. We demonstrate that accounting systems and corporate-governance mechanisms also play a role in

¹¹ All coefficients are significant at less than the 1% level except for EPS in 1997, which is insignificant.

determining the relation between stock prices and accounting information during an economy-wide financial crisis.

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Discussion

Discussion of the effects of the Asian crisis, corporate governance and accounting system on the valuation of book value and earnings

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The objective of the study on which Davis-Friday, Eng, and Liu (henceforth DFEL) report in their paper “The Effects of Crisis, Corporate Governance and Accounting System on the Valuation of Book Value and Earnings” is twofold. The first objective is to examine the impact of the Asian financial crisis on the value relevance of equity book value and net income. The authors expect that the value relevance of book value of equity will increase, while the value relevance of net income will decrease. The second aim is to study the effect of cross-country differences in corporate governance and accounting systems on changes in the value relevance of equity book value and net income caused by the Asian financial crisis.

The authors examine the impact of the Asian financial crisis in four countries: Indonesia, Thailand, Malaysia, and South Korea. They use firm-level financial and market data from Datastream, country-level governance data from LaPorta, Lopez-de-Silanes, Schleifer and Vishny (1998) and country-level proxies of reporting and audit quality from Saudagaran and Diga (1997). DFEL use the governance data from LaPorta et al. (1998), and the proxy for audit quality from Saudagaran and Diga (1997) to create a composite governance score. The authors assess the impact of reporting quality separately. The data are from 1996 (the year prior to the financial crisis) and 1997 (the year of the financial crisis).

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The authors find some evidence that the value relevance of equity book value and net income has changed during the crisis. However, they find evidence of changes in the value relevance of accounting information in only some countries and the observed changes are not always in the expected direction (see Table 4 in DFEL this issue). As concerns the authors' second research question, i.e., whether cross-country differences in corporate governance and accounting systems can explain cross-country differences in the impact of the Asian financial crisis on the value relevance of book value and earnings, the results are, in my opinion, not clear-cut. In the remainder of this discussion, I elaborate on why we should be careful in interpreting the results as evidence that cross-country differences in corporate governance and accounting systems can explain cross-country differences in the impact of the Asian financial crisis on the value relevance of equity book value and earnings.

The remainder of this discussion is organized as follows. The next section discusses the research hypotheses. In Section 2, I take a critical look at the results. And in Section 3 I provide some potential explanations for the puzzling results regarding the second research question. Section 4 discusses some further issues and Section 5 concludes.

1. A critical look at the research questions and hypotheses

1.1. The first research question: hypothesis 1

Barth, Beaver, and Landsman (1998) examined how the value relevance of equity book value and earnings changes when the financial health of the firm deteriorates. They find that the value relevance of equity book value increases and the value relevance of net income declines. DFEL expand this question to whether a macro-economic shock, like the Asian financial crisis, can cause similar shifts in the value relevance of equity book value and net income. They formulate Hypothesis 1 accordingly. In my opinion, however, an extension of the Barth et al. (1998) hypothesis from a firm-level setting (firm-level financial health) to a macro-economic setting (Asian financial crisis) and from an American context to an Asian cross-country context is not that straightforward. I see two reasons for this. The first reason is that one would expect a shift in the value relevance of equity book value and net income similar to the one observed by Barth et al. (1998) only when the Asian financial crisis has deteriorated the firms' financial health as defined by Barth et al. (1998). The second reason is that various studies have shown that pre-crisis properties of accounting information (such as, for example, value relevance of accounting figures) already differ across countries (see, for example, Ali & Hwang, 2000). Therefore, it remains to be seen whether any shifts in the value relevance of accounting information in Asian countries will be similar to those observed in the United States. The mixed results reported in Table 4 (see DFEL this issue) are less surprising when viewed from this perspective.

1.2. The second research question: hypotheses 2 and 3

The second objective of the paper is to examine whether cross-country differences in governance and accounting systems can explain the mixed results on the impact of the

Asian financial crisis on the value relevance of equity book value and net income across countries (see Section 2). Since some prior studies have already investigated hypotheses similar to Hypothesis 1 in some individual countries (see, for example, Graham, King, & Bailes, 2000, for Thailand), the main potential of the paper lies, in my opinion, in this second research question. However, in the hypothesis section, the authors leave the readers in the dark as to how exactly they expect governance and accounting systems to influence shifts in the value relevance of equity book value and earnings caused by the Asian financial crisis. For example, in their Hypothesis 3, the authors only formulate expectations as to how the value relevance of equity book value and net income generated from an IAS-based accounting system compares to the value relevance of accounting info generated from a tax-based accounting system during a crisis. Hypothesis 3 does not indicate how the type of accounting system can impact the expected shifts in the value relevance of equity book value and net income induced by the crisis.

2. A critical look at the results

To test whether the Asian financial crisis increases the value relevance of book value and decreases the value relevance of net income (Hypothesis 1) DFEL estimate a multiple linear-regression model with the market value of equity per share (MVS) as the dependent variable, and as independent variables, the book value per share (BVS), earnings per share (EPS), an indicator variable (*I*) for whether the data are from 1997 (the year of the crisis) or 1996 (the year prior to the crisis), and two interaction variables, i.e., an interaction of the book value per share with the indicator variable (*I**BVS), and an interaction of the earnings per share with the indicator variable (*I**EPS). The authors run the regression on the individual-country samples (Malaysia, Indonesia, Thailand, and Korea), and on the pooled sample. Table 4 (see DFEL this issue) shows the results of these estimations. The table shows that DFEL find support for Hypothesis 1 in Indonesia and Thailand. However, in contrast to expectations, they find a decrease in the value relevance of both equity book value and earnings in Malaysia. Their results further indicate that the crisis had no impact on the value relevance of book value of equity and net income in Korea. Malaysia seems to dominate the pooled results. The value relevance of both equity book value and net income decreases.

Table 1, panel C, provides information on the strength of the governance system and the properties of the accounting system in the four countries under study. The governance proxy (a composite governance score) takes a value from 1 to 4, with four indicating a weak governance system and one indicating a strong governance system. Table 1 shows that Indonesia and Thailand are the countries with the weaker governance systems. Malaysia and Korea are the countries with the stronger governance systems. The proxy for the accounting system takes a one if the accounting standards are based on IAS, and zero if the accounting standards are based on the tax code. Table 1 indicates that Indonesia, Thailand, and Malaysia are classified as having IAS-based accounting standards.

Taken together, Table 4 and Table 1, panel C, give a first indication on whether governance and accounting systems can explain cross-country differences in the impact of the Asian financial crisis on the value relevance of equity book value and net income. More specifically, Hypothesis 1 is supported in countries with the weakest governance systems (Indonesia and Thailand), while the results are mixed for the two countries with a stronger governance system (Malaysia and Korea). Using the accounting system as a classification variable also gives mixed results. More specifically, the value relevance of equity book value increases in two of the three IAS-based countries (Indonesia and Thailand), but decreases in the third country with IAS-based accounting standards (Malaysia). This already suggests that the two factors which are hypothesized to mediate the effect of the Asian financial crisis on the value relevance of equity book value and net income across countries will only have moderate (if any) explanatory power.

Another noteworthy observation is that the Asian financial crisis seems to have a similar effect on the value relevance of equity book value in the countries with the *weakest* governance systems, i.e., Indonesia and Thailand, as a deteriorating financial health has in the United States, a country known to have a relatively *strong* governance system (see, for example, the values for the corporate governance measures for the United States as reported in LaPorta et al., 1998).

To formally test their Hypotheses 2 and 3, DFEL expand their first model with three-way interactions between (1) the proxy for the strength of the governance system or type of accounting system, the year indicator, and book value per share ($CG*I*BVS$ or $AC*I*BVS$), and (2) the proxy for the strength of the governance system or type of accounting system, the year indicator, and earnings per share ($CG*I*EPS$ or $AC*I*EPS$). Table 6, panels A and B, show the results of the estimation of these regressions. The table indicates that the three-way interactions with earnings per share are never significant, which suggests that the effect of the Asian financial crisis on the value relevance of net income is similar across countries. However, the results in Table 4 suggest otherwise. There is a *significant* negative impact of the crisis on the value relevance of net income in Indonesia, Thailand, and Malaysia, but *no significant* impact in Korea.

Table 6 further shows that the three-way interactions with book value per share are significantly negative. Also, in the regression where DFEL examine the mediating impact of the strength of the governance system, the coefficient on the interaction between the year-indicator and book value per share ($I*BVS$) is positive. Given these two observations, and given that Indonesia and Thailand have the weakest governance systems (values of 4 and 3 on the composite governance score, respectively), the Asian financial crisis turns out to have a *negative* impact on the value relevance of equity book value for these two countries. This sharply contrasts the estimation results of the country regressions reported in Table 4. Table 4 reports a significant *positive* impact of the Asian financial crisis on the value relevance of equity book value in Indonesia and Thailand. Similarly, Panel B of Table 6 shows that the coefficient on $I*BVS$ is negative and not significant. The three-way interaction $AC*I*BVS$ is significantly negative. Since AC takes a one for Malaysia, Indonesia, and Thailand (i.e., the countries with IAS-based accounting

standards), the results suggest that the Asian financial crisis has a negative impact on the value relevance of equity book value in these three countries. We know from Table 4 that this is indeed the case for Malaysia. However, given the results of the country regressions in Table 4, we would expect a positive impact in Indonesia and Thailand. In summary, some of the results reported in Table 6 seem to conflict with the country results reported in Table 4. This suggests that we should be careful in interpreting the results as evidence that cross-country differences in governance and accounting systems can explain cross-country differences in the impact of the Asian financial crisis on the value relevance of equity book value and net income.

3. Potential explanations for the results

I see various possible explanations for the puzzling results reported in Tables 4 and 6.

A first set of explanations relates to the choice and measurement of the variables according to which we classify countries. It is clear from the discussion in Section 2 that governance and accounting system proxies never partition the countries into the three different groups we expect to see, given the results in Table 4 (i.e., countries whose value relevance of equity book value does not change, (increase or decrease) due to the Asian financial crisis). One possible reason is that there are other properties of accounting and governance systems or other institutional variables that were not considered in this paper, which could better explain the different impact of the Asian financial crisis on the value relevance of equity book value and net income across countries. As mentioned in Section 1, the paper does not explain why cross-country variation in governance and accounting systems would affect the impact of the Asian financial crisis on the value relevance of equity book value and earnings. There is even less support to expect that the specific governance and accounting system proxies used (i.e., shareholder rights, creditor rights, rule of law, ownership, audit report quality and accounting standards) could explain the cross-country differences in the impact of the Asian financial crisis on the value relevance of equity book value and earnings.

Even assuming that there is a clear theoretical basis for using the governance and accounting proxies, there are still some other problems with using these measures in the study. First, although the measures were used in various prior studies (see, for example, LaPorta et al., 1998) they remain crude proxies of the underlying constructs. This does not help in classifying countries correctly. Also, the variation in the governance and accounting-system proxies is limited. This is not very surprising considering that the governance and accounting-system proxies used are country-level (instead of firm-level) measures, and that there are only four different countries in the sample. Expanding the number of countries in the sample (Saudagaran & Diga, 1997, for example, used data from 47 countries with emerging capital markets, and Johnson, Boone, Breach, & Friedman, 2000 used data from 25 emerging markets), and/or using firm-level corporate governance and accounting-system attributes could help to increase the variation in the governance and accounting-system measures.

Also a research design issue may to some extent explain the puzzling results in Tables 4 and 6. More specifically, the interaction terms between the corporate governance or accounting-system proxy, on the one hand, and the year-indicator, on the other hand, (i.e., $CG * I$ or $AC * I$) are missing from the models estimated to test Hypotheses 2 and 3, which clouds the interpretation of the results.

4. Some further issues

To examine the impact of the Asian financial crisis, DFEL use a year-indicator variable (I). To investigate whether they can really attribute the effect to the Asian financial crisis, and prove that the effect is not a simple year effect, DFEL also test whether the value relevance of equity book value and net income changes in the years prior to and after the Asian financial crisis. Replacing the year-dummy with another proxy for the Asian financial crisis, e.g., the extent of exchange-rate depreciation or stock market decline (see Johnson et al., 2000) might have been an alternative and more direct test of whether they can attribute the results to the Asian financial crisis.

5. Summary

DFEL investigate the impact of the Asian financial crisis on the value relevance of book value of equity and net income in four Asian countries. In addition, DFEL examine whether cross-country differences in governance and accounting systems can explain the different effects of the crisis across the four countries. These are very interesting research questions. However, some of the results of their investigation are puzzling. I propose that these puzzling results may stem from the choice of the mediating factors and/or some data, measurement, and methodological problems, such as a small number of countries in the sample, crude proxies for the strength of the governance system and the properties of the accounting system, and a lack of variation in these proxies, and a model specification issue. Further exploration of the factors affecting changes in the value relevance of equity book value and net income induced by a macro-economic shock seems an interesting avenue for future research.

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Discussion

Response to discussion of “The effects of the Asian crisis, corporate governance and accounting system on the valuation of book value and earnings”

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1. Introduction

We thank the discussant for her comments and we respond to her comments and suggestions herein. The comments focus on our research questions, hypotheses, and the results from our tests of the second research question. We provide responses to them in that order.

2. Research questions, hypotheses and results

Our first research question examines whether the Asian financial crisis caused shifts in the value relevance of equity book value and net income. The discussant opines that an extension of Barth, Beaver, and Landsman (1998) from a firm-level setting (firm-level financial health) to a macro-economic setting (Asian financial crisis), and from an American context to an Asian cross-country context is not that straightforward. We agree with the discussant's observation that value relevance of accounting numbers differs across countries (e.g., Ali & Hwang, 2000). In our paper we provide further evidence on the value relevance of book value of equity and net income in four Asian countries, before and after the Asian financial crisis. Our evidence confirms prior findings that value relevance of book value of

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equity and net income differs across countries in our sample. Our paper then investigates factors that may account for these differences. The factors examined in our paper are corporate governance and accounting systems. The discussant considers this to be the main contribution of our paper.

However, the discussant observes that we have not indicated in Hypothesis 3 how the type of accounting system can impact the expected shifts in the value relevance of equity book value and net income induced by the crisis. The countries in our sample have either IAS-based or tax-based accounting systems. Prior research (Ball, Robin, & Wu, 2003) shows that accounting properties are not strictly determined by the type of accounting system. Hence, we choose to state Hypothesis 3 in a non-directional form as there is no conclusive evidence from prior research that an IAS-based or tax-based accounting system is a clear determinant of value relevance of accounting numbers.

In Table 4, we report regression results by countries. In Table 6, we report results that include corporate governance and accounting systems as moderating factors. The discussant observes that some of the results reported in Table 6 seem to conflict with the country results reported in Table 4 and she provides explanations for the puzzling results.

We agree that our country-level measures for governance and accounting system are crude proxies at best, and are limited in their variation across the sample. The discussant's suggestion that expanding the number of countries in the sample and/or using firm-level corporate governance and accounting-system attributes to increase the variation in the governance and accounting-system measures is certainly worth exploring in future research. It would be beneficial to future research if such firm-level data could be obtained.

The discussant suggests that a research-design issue may also explain the puzzling results in Tables 4 and 6. She notes that the interaction term (CG^*I or AC^*I) is missing from the models estimated to test Hypotheses 2 and 3. In untabulated tests, we find that the results do not change when these terms are included in the estimation.

The discussant suggests replacing the year-indicator variable for the Asian financial crisis with exchange rate depreciation or stock market decline (e.g., Johnson, Boone, Breach, & Friedman, 2000) for a more direct test of whether the results can be attributed to the Asian financial crisis. The Asian financial crisis certainly affected the four countries in our sample to varying extents. We agree that these alternative measures may provide a clearer understanding of the extent of the differential impact of the Asian financial crisis on the sample firms.

3. Conclusion

We appreciate the discussant's comment that our paper raises some very interesting research questions. We also think that some of the issues raised by the discussant provide avenues for future research of other factors that may explain changes in the value relevance of equity book value and net income induced by a macro-economic shock.

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Further evidence on analyst and investor misweighting of prior period cash flows and accruals

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Abstract

We empirically investigate three questions: (i) whether analysts and investors mis-estimate the persistence of operating cash flows, (ii) if so, is the cash flow effect distinct from the accrual effect in the sense that one effect holds after controlling for the other, and (iii) if these are distinct effects, which effect is stronger in magnitude? We find that prior period operating cash flows have a significant positive effect on forecast errors and stock returns consistent with analysts and investors underestimating the persistence of operating cash flows. Further, we find that not only is the operating cash flow effect *distinct* from the accrual (more specifically the working capital accrual) effect but it is also considerably larger in magnitude. To our knowledge, this is the first study that documents the *relative* magnitude of prior period cash flow and working capital accrual effects on forecast errors and stock returns. Our findings have several implications for future research and practice. First, the consistency of results across the two sets of users (analysts and investors) suggests that analyst-forecast inefficiencies are less likely to be driven by their incentives to promote stocks and more likely to be a manifestation of a broader phenomenon that has not been thoroughly investigated in prior studies. Second, for practitioners, our results suggest that a trading strategy based on prior period working capital accruals and cash flows would earn higher abnormal returns than a trading strategy based on accruals alone.

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1. Introduction

We empirically investigate three questions: (i) whether analysts and investors misestimate (or misweight) the persistence of operating cash flows, i.e., is there an effect of prior period operating cash flows on forecast errors and on stock returns, (ii) if so, is the cash flow effect distinct from the accrual (or working capital accrual) effect in the sense that, one effect holds after controlling for the other, and (iii) if these are distinct effects, which effect is stronger in magnitude? We find that prior period operating cash flows have a significant positive effect on forecast errors and stock returns consistent with analysts and investors underestimating the persistence of operating cash flows. Further, we find that not only is the operating cash flow effect distinct from the accrual (more specifically the working capital accrual) effect, but it is also considerably larger in magnitude.

These questions are important because, since Sloan (1996), prior research has focused almost exclusively on investigating analyst-forecast and stock-price inefficiencies with respect to prior period accruals and generally ignored operating cash flows.¹ The focus on accruals in prior work is motivated by the expectation that accruals contain transitory components (potentially because of managerial discretion or estimation error), which are not correctly perceived by analysts or investors. However, if financial statement users over-estimate the persistence of accruals because they are fixated on earnings, they are also likely to underestimate the persistence of cash flows. We examine two different sets of users, analysts and investors, and provide evidence on the potential misweighting of cash flows.

A recent paper, Desai et al., (2004), also examines cash flow and accrual inefficiencies with respect to stock prices. Our work differs from Desai et al. (2004) in two important ways. *First*, Desai et al. study only investor behavior (stock returns), whereas we examine both investors and analysts. A limitation of Desai et al. is that the relation between accruals, cash flows, and subsequent stock returns could be attributable to unidentified risk factors or unknown research-design flaws (e.g., Kothari, 2001). The analysis on professional sell-side analysts provides strong evidence to the market-efficiency debate. *Second*, Desai et al. focus on total accrual mispricing whereas we examine mispricing of both total and working-capital accruals. Given the evidence in Bradshaw et al. (2001), that the mean reversion in earnings is driven to a greater extent by working-capital accruals rather than long-term accruals, their focus on total accruals is likely to reduce the power of their tests. As we show later in the paper, we find that cash flows subsume total accruals but not working-capital accruals in predicting future stock returns.²

¹ Sloan's (1996) work has been extended by a number of studies including Collins and Hribar (2000), Hribar (2001), Xie (2001), Chan, Chan, Jegadeesh, and Lakonishok (2001), Bradshaw, Richardson, and Sloan (2001), Thomas and Zhang (2002), Fairfield, Whisenant, and Yohn (2003), Richardson, Sloan, Soliman, and Tuna (2004), Barth and Hutton (2004), and Desai, Rajgopal, and Venkatachalam (2004).

² Another key difference between Desai et al. (2004) and our work is that we use total assets and Desai et al. (2004) use stock price as the deflator, which serves different purposes. Desai et al. (2004) use cash flows scaled by price in order to subsume the effect of book-to-market and other value-glamour variables. Because stock price itself can predict future stock returns, using stock price as the deflator would confound the effect of accruals and cash flows persistence. It is unclear whether the predictive power of cash flows scaled by price is from the persistence of cash flows or stock price. As we focus on the relative persistence of accruals vs. cash flows, we use total assets as the deflator.

To study the effects of cash flows and accruals on forecast errors, we use two approaches. First, we perform univariate and multivariate regressions of forecast errors on prior period operating cash flows, accruals, and stock returns. A positive (negative) coefficient on any of the independent variables suggests underweighting (overweighting). The multivariate regression allows us to examine the effect of accruals after conditioning on cash flows and vice versa. Second, we adopt a portfolio approach that allows for a non-linear relation among variables of interest and diversifies away any idiosyncratic noise through aggregation. Specifically, we examine average forecast errors for portfolios constructed on (i) operating cash flows and accruals, respectively, (ii) operating cash flows conditional on accruals, and (iii) accruals conditional on operating cash flows. The conditional portfolios, based on a double-sorting procedure described in Section 3, help us assess the extent to which the two effects are independent and their relative magnitudes.

We use a similar portfolio approach to examine the relative effects of operating cash flows and accruals on subsequent stock returns. In addition, we perform four-factor model regressions, as in Carhart (1997), for portfolios constructed on operating cash flows and accruals to examine whether any observed returns associated with operating cash flows or accruals can be explained by common risk factors documented in empirical finance literature. As Fama and French (1996) argue, many of the CAPM anomalies are related. A four-factor model provides a relatively cleaner test of whether the accrual and cash flow effects are real anomalies or just a manifestation of some other previously documented common risk factors.

Based on a sample of 26,700 firm-year observations over 1989–2000, we find that forecast errors are significantly and positively related to past cash flows suggesting that analysts underweight prior period cash flows. Furthermore, the analyst underweighting of prior period cash flows is distinct from analyst overweighting of past accruals (or working capital accruals) in the sense that after controlling for one effect, the other effect holds. However, the cash flow effect on forecast errors is stronger in magnitude than the accrual effect on forecast errors. With respect to stock-return tests, we find that similar patterns apply to investors' behavior. Investors also underweight operating cash flows and overweight accruals. The accrual and cash flow effects are distinct from each other, supporting Sloan (1996) in the sense that the (working capital) accrual effect is still evident after conditioning on cash flows. But the cash flow effect is considerably stronger in magnitude than the accrual effect after controlling for four common risk factors used in the empirical finance literature.

Our paper contributes to the literature examining the efficiency of stock prices and analyst forecasts to prior period accounting information in several ways. First, prior studies have not examined analyst-forecast inefficiencies with respect to prior period operating cash flows after controlling for the negative correlation between accruals and cash flows. Second, with the exception of Desai et al. (2004) prior studies have not examined investor mispricing of cash flows after controlling for mispricing of accruals. We not only provide evidence on mispricing of cash flows after controlling for the negative accrual–cash flow correlation, but specifically extend Desai et al. (2004) by examining working-capital accruals and using the four-factor model of expected returns. Finally, we show that cash flows not only have an effect on forecast errors and

subsequent stock returns *distinct* from the accrual or working-capital-accrual effect but that the cash flow effect is considerably greater in magnitude. This point is not well-recognized in the literature.

Our findings have implications for future research and practice. First, the consistency of results across the two different sets of users (analysts and investors) suggests that analyst-forecast inefficiencies are less likely to be driven by their incentives to promote stocks and more likely to be a manifestation of a broader phenomenon that has not been thoroughly investigated in archival studies. Second, for practitioners, our results suggest that a trading strategy based on prior period working capital accruals and cash flows would earn higher abnormal returns than a trading strategy based on total or working-capital accruals alone.

The remainder of the paper is organized as follows. The next section presents a brief review of terminology, discussion of related literature, and our hypotheses. Section 3 describes our sample, discusses our research design, and presents our results. The conclusion is presented in Section 4.

2. Prior research and motivation for examining cash flows

Prior work documents that analysts underweight the information in prior period earnings and stock returns. For example, Mendenhall (1991), Abarbanell and Bernard (1992), and Ali, Klein, and Rosenfeld (1992) document evidence of analysts underweighting the information in prior-period earnings. Consistent with their results, Elliott, Philbrick, and Wiedman (1995) show that analysts do not revise their forecasts sufficiently to incorporate prior information. Lys and Sohn (1990), Abarbanell (1991), and Ali et al. (1992) also document evidence of analysts' underweighting the information in prior-period returns.

More recently, a number of studies document that analysts overweight the information in prior-period accruals. Specifically, Bradshaw et al. (2001) document evidence that analysts earnings forecasts do not incorporate the predictable future-earnings declines associated with high-accrual firms and that this effect is driven primarily by working-capital accruals. Consistent with Bradshaw et al. (2001), Barth and Hutton (2004) find that high accruals are associated with over optimism in analysts' forecasts.

Sloan (1996) documents that investors underestimate the persistence of cash flows and overestimate the persistence of accruals. Furthermore, he shows that a trading strategy with a long position in low-accrual firms and a short position in high-accrual firms generates significant abnormal stock returns in the subsequent two years. Sloan's work has been extended in a number of ways. In one line of work, studies attempt to identify the source of the abnormal returns to the accrual-based trading strategy. For example, Xie (2001) shows that the abnormal returns seem to be driven by the abnormal (potentially discretionary) components of accruals. Thomas and Zhang (2002) show that the abnormal returns are driven primarily by the inventory component of accruals.

Another line of work building on Sloan (1996) examines whether the accrual anomaly is separate or distinct from other anomalies. For example, Collins and Hribar (2000)

examine whether or not the accrual anomaly is distinct from the post-earnings-announcement drift. Desai et al. (2004) examine the effect of operating cash flows and accruals on subsequent abnormal returns and conclude that operating cash flows parsimoniously capture the value-glamour anomalies including the accrual anomaly.

Prior studies have generally not examined whether analysts misweight prior period cash flows, and whether cash flows have a stronger effect on forecast errors and future stock returns relative to accruals. The only study that examines the efficiency of stock prices (but not analyst forecasts) with respect to both cash flows and total accruals, Desai et al. (2004), concludes that total accruals do not have any incremental effect on subsequent returns after controlling for cash flows. This is in contrast with Sloan (1996). We fill these gaps in the literature by investigating analyst-forecast and stock-price inefficiencies with respect to cash flows and accruals.

2.1. Motivation for examining cash flows

The main motivation to examine the effects of operating cash flows on forecast errors and future stock returns is the finding in Sloan (1996) that investors underweight cash flows and overweight accruals because they seem to be fixated on earnings. More specifically, Sloan's (1996) Table 5 shows that investors attach a lower weight to operating cash flows (0.826) than the weight implied by the earnings process (0.855). The underweighting is greater when decile rankings are used (0.747 versus 0.838).

Building on Sloan (1996), Bradshaw et al. (2001) investigate whether analysts overweight (or overestimate the persistence of) accruals. The intuition for analysts overweighting accruals is similar to investors overweighting of accruals in Sloan (1996). Specifically, if analysts fixate on earnings, they are likely to attach a higher weight to those earnings components that have lower than average (across all earnings components) persistence. Because accruals are expected to have below-average persistence, analysts are expected to overweight past accruals.

We expect analysts to underweight cash flows for the same reason that they are expected to overweight accruals. In other words, if analysts fixate on earnings and therefore incorrectly assume that all components of earnings are equally persistent, they will tend to underweight cash flows because the persistence of the cash flow component of earnings is higher than the average persistence of earnings components.

A second motivation for studying the effects of operating cash flows on forecast errors is that prior studies investigating analyst misweighting of accruals do not consider the potential impact of operating cash flows on forecast errors in light of the negative correlation between accruals and cash flows documented in prior work (Dechow, Kothari, & Watts, 1998). If, as we expect, analysts underweight operating cash flows, and operating cash flows are omitted in studying the relation between forecast errors and accruals, a spurious negative relation between forecast errors and accruals can result from omitting operating cash flows. Thus, it is useful to investigate whether conditioning on operating cash flows affects the relation between accruals and forecast errors. Moreover, the fact that the correlation coefficient between cash flows and accruals is far away from -1 leaves the possibility open that cash flows and accruals may have distinct effects on analysts' forecasts and stock returns.

3. Empirical analysis

3.1. Sample and variable measurement

The sample data include all NYSE, AMEX, and Nasdaq firms excluding financial institutions (SIC 6000-6999) from 1989 to 2000 with data available from three sources. Cash flows, accruals, and other financial data are from Compustat; returns are from CRSP monthly file; and analyst-forecast data are from I/B/E/S summary files. We restrict our sample to post-1987 data in order to measure cash flow and accrual data consistently, using the statement of cash flows required by Statement of Financial Accounting Standards No. 95, which took effect in 1988. We exclude financial firms because it is difficult to define cash flows and accruals meaningfully for these firms because of the nature of their business. Furthermore, this industry has extremely high leverage and is highly regulated.

To be included in the sample, each firm-year observation must have: non-missing data on stock returns in the CRSP monthly file, and nonmissing data on total assets, total accruals, operating cash flows, and working-capital accruals in the Compustat files. In examining the effects of cash flows and accruals on analyst-forecast behavior, we further require that none of data items—analyst-earnings forecasts, actual earnings, and related data in the I/B/E/S database—be missing. Essentially, we impose minimum data requirements and only require necessary data to run multivariate regressions in each analysis. To avoid potentially confounding effects of structural changes in firms due to merger and acquisition events, we exclude firms with a change in total assets exceeding 50% in a fiscal year.

Analyst forecast (F) is the consensus (median) forecast made eight months before a firm's fiscal year-end multiplied by outstanding shares and then scaled by average total assets. Actual earnings (X) is actual earnings per share (reported in I/B/E/S) multiplied by outstanding shares and then scaled by average total assets. Forecast error (FE) is the difference between actual earnings and analyst forecast. Stock returns (RET) are annual buy-and-hold returns including dividends from CRSP. Operating cash flows, accruals, and other financial statement data are from Compustat. Operating cash flow (CF) is cash flow from operations (#308). Total accrual (TACC) is the difference between earnings before extraordinary items (#123) and operating cash flow (#308). Working-capital accrual (WCACC) is the sum of increase in accounts receivable (#302), increase in inventory (#303), decrease in accounts payable and accrued liabilities (#304), decrease in accrued income taxes (#305), and increase/decrease in other assets/liabilities (#307). Long-term accrual (LTACC) is the difference between total accruals and working-capital accruals. These data definitions are consistent with those in Bradshaw et al. (2001).

To facilitate comparison across firms, we scale all variables except for stock returns by average total assets (TA) (#6).³ We choose average total assets as the deflator for three reasons. First, we define the variables in the same way as in Sloan (1996) and Bradshaw et

³ We acknowledge that there is a mechanically positive relation between earnings and TA because earnings directly affect the ending balance of total assets, although this correlation is small. As a robustness check, we use total assets and stock price at the prior year-end as the deflator and the tenor of our results are unchanged.

al. (2001) in order to compare our results with their results. Second, average total assets match other financial statement items in the sense that total assets and other financial statement items are based on the historical-cost principle. Third, we scale forecast errors by average total assets in order to make sure that the dependent and independent variable have the same deflator in our regressions.

3.2. Descriptive statistics

Table 1 presents the descriptive statistics for our sample of firms over 1989–2000. The mean and median forecast errors as a percentage of average total assets are -2.2% and -0.5% , respectively. Consistent with prior studies, the negative forecast errors suggest that, on-average, analyst forecasts are optimistic. The mean and median total accruals are -4.9% and -4.6% of average total assets, respectively, whereas the mean and median working capital accruals are 2.0% and 1.1% of average total assets, respectively. Total accruals are negative because of depreciation. These magnitudes are similar to those reported in Bradshaw et al. (2001).

Table 1, panel B, presents the Pearson and Spearman correlations between forecast errors, prior earnings, prior returns, and prior-earnings components. Forecast errors are positively correlated with operating cash flows (Pearson = 0.239, Spearman = 0.161), but negatively correlated with working-capital accruals (Pearson = -0.103 , Spearman = -0.124). Consistent with prior literature (for example, Dechow, 1994), cash flows are negatively correlated with accruals and working-capital accruals, respectively (Pearson = -0.301 , -0.328 , Spearman = -0.478 , -0.388). This implies that the relation between forecast errors and accruals may be contaminated by the negative relation between cash flows and accruals.

3.3. Analysts' weighting of prior period information in cash flows and accruals

In this section, we first run regressions of forecast errors on prior-period earnings or its components to draw conclusions about the association between forecast errors and earnings components. To control for cross-sectional correlation and heterogeneity in regression residuals, we estimate the regressions separately for each year in the sample and then construct Fama and MacBeth (1973) t -statistics using the resulting sets of annual coefficient estimates. Table 2 reports the mean-coefficient estimates and the Fama–MacBeth t -statistics.⁴

Panel A shows the results for univariate regressions of forecast errors on prior-period earnings or earnings components.⁵ Prior-period earnings, operating cash flows, total

⁴ The Fama–MacBeth approach does not control for the temporal correlation in annual coefficient estimates, but the autocorrelation is usually small in magnitude and only significant in the first lag. In our case, none of the first-order autocorrelation coefficients on our variables of interest is larger than 0.2. Given the small magnitude of autocorrelation and that we only have 12 years' of data, we only report Fama–MacBeth t -statistics.

⁵ In both univariate and multivariate regressions, we perform sensitivity tests by symmetrically truncating the sample by 1%, 5%, or 10%. The results are similar in each case, suggesting that outliers discussed in Abarnanel and Lehavy (2003) do not have a significant effect on the explanatory power of accruals and cash flows.

Table 1

Descriptive statistics and correlation matrix for 26,700 firm-year observations from 1989 to 2000 with the required data on Compustat, CRSP, and I/B/E/S

Panel A. Descriptive statistics

	Mean	Stdev	Min	Q1	Median	Q3	Max
X_t	0.040	0.138	−0.937	0.016	0.050	0.097	0.371
F_t	0.063	0.112	−0.782	0.033	0.062	0.107	0.360
FE_t	−0.022	0.070	−0.565	−0.027	−0.005	0.004	0.196
X_{t-1}	0.034	0.136	−1.111	0.019	0.050	0.089	0.294
CF_{t-1}	0.078	0.125	−0.670	0.039	0.090	0.142	0.370
ACC_{t-1}	−0.049	0.088	−0.461	−0.087	−0.046	−0.007	0.225
$WCACC_{t-1}$	0.020	0.063	−0.190	−0.011	0.011	0.045	0.282
$LTACC_{t-1}$	−0.069	0.058	−0.401	−0.084	−0.056	−0.037	0.099
RET_{t-1}	0.156	0.610	−0.924	−0.190	0.065	0.354	6.042

Panel B. Correlation matrix. Pearson correlations are shown above the diagonal with Spearman correlation below

	X_t	F_t	FE_t	X_{t-1}	CF_{t-1}	ACC_{t-1}	$WCACC_{t-1}$	$LTACC_{t-1}$	RET_{t-1}
X_t	1	0.820	0.537	0.815	0.687	0.141	0.087	0.115	0.161
F_t	0.818	1	0.015	0.830	0.664	0.186	0.173	0.089	0.121
FE_t	0.450	0.021	1	0.217	0.239	−0.019	−0.103	0.080	0.128
X_{t-1}	0.779	0.866	0.072	1	0.763	0.249	0.165	0.189	0.041
CF_{t-1}	0.541	0.512	0.161	0.589	1	−0.301	−0.328	−0.085	0.077
ACC_{t-1}	0.109	0.183	−0.085	0.214	−0.478	1	0.729	0.662	−0.008
$WCACC_{t-1}$	0.111	0.216	−0.124	0.212	−0.388	0.730	1	−0.003	−0.030
$LTACC_{t-1}$	0.032	0.019	0.015	0.073	−0.270	0.593	0.008	1	0.020
RET_{t-1}	0.331	0.230	0.286	0.170	0.174	−0.018	−0.051	0.027	1

Variables are defined as follows.

X : Actual earnings per share from I/B/E/S multiplied by outstanding shares and then scaled by average total assets (TA).

F : Consensus (median) forecast multiplied by outstanding shares and then scaled by TA, where the forecast is made eight months before the fiscal year-end.

FE : Forecast error defined as the difference between actual earnings and consensus (median) forecast multiplied by outstanding shares and then scaled by TA.

RET : Annual buy-and-hold returns including dividends from CRSP up to the forecast date.

$WCACC$: Working capital accrual measured as the sum of increase in accounts receivable, increase in inventory, decrease in accounts payable and accrued liabilities, decrease in accrued income taxes, and increase/decrease in other assets/liabilities scaled by TA.

CF : Cash flow from operations scaled by TA.

ACC : Total accruals measured as the difference between earnings before extraordinary items and operating cash flow scaled by TA.

$LTACC$: Long-term accruals measured as the difference between total accrual and working-capital accrual scaled by TA.

The top and bottom 1% observations are winsorized to avoid the effect of outliers.

accruals, and working-capital accruals are all significant in univariate tests with expected signs. The coefficient of operating cash flows is 0.125, with a t -statistic of 8.46. The coefficient of working-capital accruals is −0.116, with a t -statistic of −10.32. Total accruals have a weaker relation with forecast errors, with a coefficient of −0.024 and t -statistic of −1.99. This panel suggests that both cash flows and accruals perform well in predicting forecast errors.

Table 2

Regressions of forecast errors on prior period earnings components and stock returns

	FE _t	FE _t	FE _t	FE _t
<i>Panel A: univariate regressions</i>				
Intercept	-0.025 ** (-19.29)	-0.031 ** (-16.48)	-0.023 ** (-20.96)	-0.019 ** (-19.20)
X _{t-1}	0.102 ** (6.46)			
CF _{t-1}		0.125 ** (8.46)		
ACC _{t-1}			-0.024 ** (-1.99)	
WCACC _{t-1}				-0.116 ** (-10.32)
Average adj. R ²	0.043	0.053	0.004	0.015
<i>Panel B: multivariate regressions</i>				
Intercept	-0.030 ** (-21.27)	-0.032 ** (-18.40)	-0.023 ** (-16.99)	-0.025 ** (-15.56)
CF _{t-1}	0.133 ** (7.82)	0.121 ** (6.88)	0.124 ** (7.31)	0.112 ** (6.36)
ACC _{t-1}	0.036 * (2.30)	0.031 (1.95)		
WCACC _{t-1}			-0.035 * (-1.98)	-0.038 * (-2.13)
LTACC _{t-1}			0.113 ** (7.44)	0.105 ** (6.90)
RET _{t-1}		0.018 ** (8.59)		0.018 ** (8.55)
Average adj. R ²	0.058	0.081	0.068	0.089

* and ** indicate significance at the 5% and 1% level, respectively.

All variables are as defined in Table 1. The coefficient estimate is the time-series average of the annual cross-section regression slopes from 1989 to 2000, and the *t*-statistics, shown in parentheses, are the Fama–MacBeth *t*-statistics. There are 2225 observations in annual regressions, on average. The top and bottom 1% of FE_t, X_{t-1}, CF_{t-1}, ACC_{t-1}, WCACC_{t-1}, LTACC_{t-1} and RET_{t-1} are winsorized to avoid the effect of outliers.

However, these univariate tests may suffer from a correlated omitted-variables problem. To statistically examine the incremental association between forecast errors and each earnings component, we run the following multivariate regressions.

$$FE_t = \beta_0 + \beta_1 CF_{t-1} + \beta_2 ACC_{t-1} + \varepsilon_t$$

$$FE_t = \beta_0 + \beta_1 CF_{t-1} + \beta_2 ACC_{t-1} + \beta_3 RET_{t-1} + \varepsilon_t$$

$$FE_t = \beta_0 + \beta_1 CF_{t-1} + \beta_2 LTACC_{t-1} + \beta_3 WCACC_{t-1} + \varepsilon_t$$

$$FE_t = \beta_0 + \beta_1 CF_{t-1} + \beta_2 LTACC_{t-1} + \beta_3 WCACC_{t-1} + \beta_4 RET_{t-1} + \varepsilon_t$$

We include prior-period returns as an explanatory variable in addition to prior-period earnings components to proxy for other information not captured in prior-period earnings components that may affect analyst forecasts based on the evidence in Abarbanell (1991) and Ali et al. (1992).

Table 2, panel B, shows the results of these regressions. Cash flows have significantly positive effects on forecast errors in all four regressions, with coefficients around 1.2 and *t*-statistics over 6.0. The coefficients of cash flows in the multivariate tests do not differ much from the coefficient in the univariate test. Total accruals have a marginally positive effect on forecast errors, contrary to the expected overweighting of accruals. The fact that the inclusion of cash flows in the regression model flips around the sign of the coefficient on total accruals suggests that total accruals capture

the cash flow effect in the univariate test. The coefficient on working-capital accruals remains significantly negative in the multivariate tests but its magnitude drops dramatically from -0.116 in the univariate test to -0.035 and -0.038 , respectively, in the multivariate tests.

The coefficient on prior-period stock returns is 0.018 , with a t -statistic of 8.6 in both regressions. Additionally, the inclusion of stock returns does not significantly change the explanatory power of cash flows, accruals, and working-capital accruals. The significance of cash flows and working-capital accruals in the multivariate regression suggests that both components capture some incremental information that is not fully utilized by analysts.

A potential explanation for the low significance of the coefficient on total accruals or other accrual measures is that accruals have higher times-series variability. Prior literature demonstrates that cash flows are more persistent than accruals (see Fig. 1 in Sloan, 1996). Higher persistence suggests lower times-series variability. In our sample period, the lag-1 autocorrelation is 0.602 for cash flow from operations, 0.311 for total accruals, and 0.153 for working-capital accruals. The high time-series variability of accruals makes an innovation in earnings less valuable and thus reduces its coefficient estimates.

To address potential non-linear relationships between forecast errors and earnings components as well as the effects of noise in accruals, we use a portfolio approach to examine the impact of earnings components on analysts' forecasts. The portfolio approach also has the advantage that it makes it easier to gauge the economic significance of the results.

We sort firms into ten deciles based on prior-year earnings or earnings components, and calculate average forecast errors as the average of annual means of each decile from 1989 to 2000.⁶ Table 3, panel A, reports these averages. Surprisingly, the forecast errors for all sorts provide an inverted U-shaped distribution. The bottom cash flow decile has an average forecast error (FE) of -6.87% , while that of the top decile is -1.36% . Earnings exhibit a similar pattern, with average FEs of -6.35% and -2.07% in the bottom and top deciles, respectively. The average FEs for ten total-accrual or working-capital-accrual deciles exhibit a strong inverted U-shape, with more negative ones for extreme deciles. Once we pass the bottom three deciles, working-capital accruals have a monotonically negative relation with forecast errors, with a decreasing average FE from -1.13% for decile 4 to -5.06% for decile ten. Again, the negative elation between cash flows and accruals may play a role here.

To summarize, the one-variable-sorted portfolio approach confirms the regression results in the sense that each earnings component is related to forecast errors with expected signs and cash flows perform the best. However, the inverted U-shaped distribution of forecast errors calls into question the reliability of the linear regressions commonly used in prior literature. In the remainder of the discussion, we focus on comparing cash flows and

⁶ The results of the pooled means, by pooling all portfolio observations across years, are almost identical. We choose to report the mean of annual portfolio means and calculate time-series standard errors (panel C) in the spirit of Fama and MacBeth (1973).

Table 3

Average forecast errors across various portfolios based on prior year's cash flow and working-capital accruals

Panel A: average forecast errors (FE_t) for ten deciles based on X_{t-1} , CF_{t-1} , ACC_{t-1} , or $WCACC_{t-1}$

	Ten deciles on X_{t-1}	Ten deciles on CF_{t-1}	Ten deciles on ACC_{t-1}	Ten deciles on $WCACC_{t-1}$
Decile 1 (low)	–6.35%	–6.87%	–3.30%	–2.93%
Decile 2	–3.10%	–3.25%	–2.03%	–1.74%
Decile 3	–1.78%	–2.08%	–1.67%	–1.15%
Decile 4	–1.31%	–1.60%	–1.35%	–1.13%
Decile 5	–1.35%	–1.36%	–1.21%	–1.31%
Decile 6	–1.21%	–1.23%	–1.43%	–1.42%
Decile 7	–1.27%	–1.22%	–1.60%	–1.71%
Decile 8	–1.45%	–1.14%	–1.84%	–2.04%
Decile 9	–1.62%	–1.41%	–2.62%	–3.02%
Decile 10 (high)	–2.07%	–1.36%	–4.45%	–5.06%

Panel B: average forecast errors and selected firm characteristics for ten conditional deciles based on CF_{t-1} and $WCACC_{t-1}$

	FE_t	CF_{t-1}	WC ACC_{t-1}	LT ACC_{t-1}	X_t	X_{t-1}	RET_{t-1}
<i>Ten working capital accrual deciles conditional on cash flows</i>							
Decile 1 (low)	–3.20%	7.94%	–7.51%	–6.44%	–1.49%	–4.36%	14.12%
Decile 2	–1.65%	7.77%	–2.77%	–6.10%	0.51%	–0.44%	14.94%
Decile 3	–1.41%	7.85%	–1.09%	–6.18%	1.63%	0.79%	14.40%
Decile 4	–1.58%	7.85%	0.06%	–6.35%	2.39%	1.80%	13.41%
Decile 5	–1.60%	8.08%	1.09%	–6.69%	3.33%	2.77%	12.40%
Decile 6	–1.88%	8.04%	2.18%	–6.88%	3.99%	3.61%	13.03%
Decile 7	–2.14%	8.19%	3.45%	–7.08%	4.85%	4.76%	14.07%
Decile 8	–2.08%	8.23%	4.90%	–6.87%	6.59%	6.58%	15.73%
Decile 9	–2.50%	8.05%	7.02%	–7.02%	8.03%	8.39%	16.13%
Decile 10 (high)	–3.52%	7.63%	11.80%	–8.48%	11.19%	11.78%	18.73%
<i>Ten cash flow deciles conditional on working-capital accruals</i>							
Decile 1 (low)	–6.00%	–15.14%	2.32%	–6.88%	–16.82%	–20.13%	7.86%
Decile 2	–2.99%	0.63%	2.26%	–5.42%	–0.44%	–1.01%	3.94%
Decile 3	–1.93%	4.11%	2.12%	–5.27%	2.34%	2.07%	9.74%
Decile 4	–1.61%	6.19%	2.01%	–5.57%	3.43%	3.39%	10.26%
Decile 5	–1.49%	7.91%	1.95%	–5.89%	4.49%	4.58%	13.09%
Decile 6	–1.46%	9.61%	1.86%	–6.42%	5.50%	5.59%	15.23%
Decile 7	–1.42%	11.52%	1.78%	–6.81%	6.80%	6.85%	15.90%
Decile 8	–1.42%	13.77%	1.70%	–7.31%	8.63%	8.48%	19.13%
Decile 9	–1.61%	16.85%	1.60%	–8.21%	10.81%	10.52%	23.48%
Decile 10 (high)	–1.66%	23.98%	1.56%	–10.36%	16.01%	15.05%	28.46%

(continued on next page)

Table 3 (continued)

Panel C: average forecast errors (FE_{*t*}) for 25 portfolios based on CF_{*t-1*} and WCACC_{*t-1*}

	CF1 (Low)	CF2	CF3	CF4	CF5 (high)	CF1–CF5
WCACC1 (low)	–5.72%	–2.22%	–1.55%	–1.33%	–1.16%	–4.57%** (–6.04)
WCACC2	–4.20%	–1.10%	–0.55%	–0.64%	–1.34%	–2.86%** (–4.02)
WCACC3	–4.41%	–1.24%	–0.75%	–0.78%	–1.09%	–3.32%** (–6.56)
WCACC4	–4.69%	–1.72%	–1.18%	–1.21%	–1.42%	–3.27%** (–10.87)
WCACC5 (high)	–6.27%	–2.92%	–2.46%	–1.92%	–1.91%	–4.36%** (–9.35)
WCACC5 – WCACC1	–0.54% (–0.91)	–0.71%** (–2.64)	–0.91%** (–2.73)	–0.59%** (–2.64)	–0.75%** (–2.69)	

* and ** indicate significance at the 5% and 1% level, respectively.

Portfolios are formed based on X_{t-1} , CF_{t-1} , ACC_{t-1} , or $WCACC_{t-1}$, which are defined as in Table 1. In Panel A, firms are sorted into ten equal-size deciles. In Panel B, a two-way sorting technique is used to control cash flow (CF) or working-capital accruals (WCACC). To form ten WCACC deciles conditional on CF, all firms are sorted into ten CF groups and each CF group is further sorted into ten WCACC portfolios. Finally, all ten WCACC portfolios of each CF group are pooled together into one decile. A similar method is applied to the ten CF deciles conditional on WCACC. In Panel C, firms are first sorted into five CF groups and then each CF group is further sorted into five WCACC portfolios. All financial firms ($6000 \leq \text{DNUM} \leq 6999$) are excluded from the sample. The average forecast errors are the average of annual means of forecast errors for each portfolio. The *t*-statistics, shown in parentheses, are the average forecast error divided by its time-series standard error adjusted by the number of annual means. There are 26,700 firm-year observations from 1989 to 2000, and therefore each portfolio has an average of 223, 223, and 89 firms each year in Panel A, B, and C, respectively. The top and bottom 1% of FE_{*t*}, X_{t-1} , CF_{t-1} , ACC_{t-1} , $WCACC_{t-1}$, $LTACC_{t-1}$ and RET_{t-1} are winsorized to avoid the effect of outliers.

working-capital accruals because, based on the above results, working-capital accruals are driving the accrual effects.

To control for the negative correlation between cash flows and accruals in portfolio formation, we use a two-variable sorting technique as follows. We form ten working-capital-accrual deciles conditional on cash flows, by first sorting all firms into ten groups based on operating cash flows. Next, for each cash flow group, we sort firms into ten working-capital-accrual portfolios. Finally, we pool ten working-capital-accrual portfolios from each cash flow group together into one working-capital-accrual (WCACC) decile. In this way, cash flows should be similar for the ten resulting WCACC deciles. We use a similar technique to construct ten operating cash flow (CF) deciles conditional on WCACC. Table 3, panel B, shows the average forecast errors and firm characteristics for the ten conditional working-capital and cash-flow deciles, respectively. Conditional on operating cash flows, WCACC is negatively related to forecast errors, once we pass the lowest decile. From decile two to decile ten, the average forecast errors decrease from –1.65% to –3.52%. WCACC increases from –7.51% to 11.80% from decile one to decile ten, while operating cash flows remain stable around 8%, suggesting the double-sorting procedure has been effective in controlling for operating cash flows.

Conditional on WCACC, the effect of operating cash flows on forecast errors are considerably larger. The average forecast errors increase from -6.00% in decile one to -1.66% in decile ten when operating cash flows increase from -15.14% to 23.98% . WCACC slightly decreases from decile 1 to decile 10 but the change is very small in magnitude.

In Table 3, panel C, we show average forecast errors for 25 portfolios constructed using a double-sorting procedure based on operating cash flows and working-capital accruals. Specifically, firms are first sorted into five operating cash flow groups and then each CF group is further sorted into five WCACC portfolios.⁷ In this way, we have 25 resulting portfolios. A few points are worth mentioning. First, forecast errors are positively related with cash flows and negatively related with working-capital accruals. On the one hand, the difference of forecast errors in bottom and top CF portfolios (CF1–CF5) is significantly negative in every WCACC group. On the other hand, the top WCACC portfolio has more negative forecast errors than the bottom one in every CF group. The average forecast errors are the lowest for low-CF and high-WCACC portfolios and the highest for high-CF and low-WCACC portfolios.

Second, cash flows have a relatively bigger effect on forecast errors than working-capital accruals. The CF1–CF5 difference is highly significant across five WCACC groups, with an average magnitude of -3.68% . The WCACC5 – WCACC1 difference is significant in four CF groups, with an average magnitude of -0.70% . Such results are consistent with the regression results that both cash flows and working capital accruals are significant but cash flows have higher explanatory (or predictive) power.

Fig. 1 provides descriptive, graphic evidence of forecast errors for combinations of firms based on operating cash flows and working-capital accruals over different forecast horizons. This sheds light on the relative magnitude (and importance) of operating cash flow and working-capital accrual effects. The bottom two lines are for low cash flows (the first quintile) while the top two lines are for high cash flows (the fifth quintile). The lowest (most negative) forecast errors are observed for firms that have both low operating cash flows and high working-capital accruals while the least negative forecast errors are observed for firms with high operating cash flows and low working-capital accruals, indicating both cash flows and working-capital accruals affect forecast errors.

If we focus on the middle two lines in Fig. 1, the portfolio with low operating cash flows and low working-capital accruals has more negative forecast errors than the portfolio with high operating cash flow and high working-capital accruals, suggesting that cash flows have a bigger effect on forecast errors than accruals. Furthermore, the difference between the top/bottom two lines is relatively small, while there is a big distance between the top two lines and bottom two lines. These results also suggest that both operating cash flows and working-capital accruals have an incremental impact on analysts' forecast errors

⁷ The sorting order does not play a significant role here. Similar results are obtained when we first sort stocks by working-capital accruals and then by cash flows or when we choose independent sorting. We choose not to use independent sorting because some portfolios would be very thin, which leads to unreliable results. In panel C, quintiles rather than deciles are used because we double sort by cash flows and working-capital accruals, which generates 25 portfolios (as opposed to ten portfolios in Panels A and B).

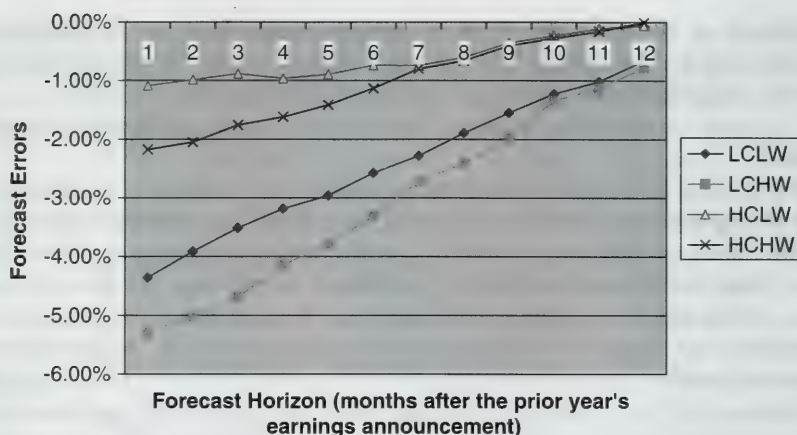


Fig. 1. Analyst forecast errors for interacted quintiles of cash flow and working capital accrual portfolios over different forecast horizons. This figure presents average forecast errors for low cash flow and low working-capital-accrual quintiles (LCLW), low cash flow and high working-capital accrual quintiles (LCHW), high cash flow and low working-capital accrual quintiles (HCLW), and high cash flow and high working-capital-accrual quintiles (HCHW) over 12 different forecast horizons. Forecast horizon 1 is the first month following the prior year's earnings announcement, forecast horizon 2 is the second month following the prior year's earnings announcement, and so on. Monthly forecast errors are defined as actual earnings minus forecasted earnings in that month scaled by average total assets. Firm-year observations are first sorted annually into five quintiles by prior year's cash flow, and then each cash flow decile is sorted into five quintiles based on working-capital accruals. This kind of sorting guarantees a similar number of observations in each interacted quintile. There are about 675 observations for each interacted quintile in each month. The sample constitutes those observations for which analyst forecasts are available in month 1 in the IBES database.

but that operating cash flows have a larger effect than working-capital accruals. This conclusion is independent of the choice of the forecast horizon.

3.4. Investors' use of information in cash flows and accruals

In this section, we report average annual market-adjusted and size-adjusted returns and other characteristics for portfolios based on prior-year cash flows and working-capital accruals in order to draw conclusions about investors' use of information in cash flows and accruals. If investors underestimate the persistence of cash flows, we would expect that high cash flow portfolios will earn high stock returns. If investors do not anticipate the more rapid mean reversion in earnings associated with extreme accruals, then we would expect poor stock performance for high accrual firms. Following Jegadeesh and Titman (2001), we exclude stocks with a share price below five dollars to make sure that the results are not driven by small, illiquid stocks or by bid-ask bounce.

3.5. Annual returns based on prior-period earnings and earnings components

To ensure that the accounting information would have been available to investors, return measurement begins from the fifth month after the end of the fiscal year in which

Table 4
Regressions of stock returns on prior period cash flows and accruals

	1	2	3	4	5	6	7	8	9
Intercept	0.103** (2.85)	0.118** (3.83)	0.138** (3.93)	0.148* (2.27)	0.134* (2.09)	0.154** (2.37)	0.139* (2.18)	0.144* (2.19)	0.146* (2.24)
CF _{<i>t</i>-1}	0.388** (4.25)			0.385** (5.09)			0.329** (3.11)	0.382** (4.97)	0.280** (2.97)
ACC _{<i>t</i>-1}		-0.36** (-4.40)			-0.39** (-5.41)		-0.198 (-1.70)		
WCACC _{<i>t</i>-1}			-0.47** (-6.47)			-0.44** (-6.29)			-0.28** (-2.29)
DACC _{<i>t</i>-1}								0.004 (1.29)	
SIZE _{<i>t</i>-1}				-0.005 (-0.68)	0.001 (0.07)	0.001 (0.15)	-0.004 (-0.59)	-0.004 (-0.60)	-0.002 (-0.31)
BM _{<i>t</i>-1}				0.018 (0.85)	0.022 (0.99)	0.024 (1.11)	0.019 (0.92)	0.018 (0.83)	0.019 (0.98)
RET12 _{<i>t</i>-1}				0.017 (1.05)	0.023 (1.47)	0.029 (1.78)	0.017 (1.05)	0.016 (1.00)	0.023 (1.39)
Average adj. <i>R</i> ²	0.015	0.004	0.004	0.039	0.032	0.030	0.042	0.040	0.039

* and ** indicate significance at the 5% and 1% levels, respectively.

The dependent variable is annual returns (RET_{*t*}) calculated from the start of the fifth month subsequent to the end of the fiscal year in which cash flows and accruals are measured. DACC is discretionary accruals estimated from the modified Jones model. RET12 is the past 12-month buy-and-hold returns up to the third month after fiscal year-end. Other variables are as defined in Table 1. Stocks with prices less than five dollars at the time of portfolio formation are excluded, so are all financial firms (6000 ≤ DNUM ≤ 6999). The coefficient estimate is the time-series average of the annual cross-section regression slopes from 1989 to 2000, and the *t*-statistics, shown in parentheses, are Fama–MacBeth *t*-statistics. The top and bottom 1% of all variables are winsorized to avoid the effect of outliers.

cash flows and accruals are measured. To avoid the survival bias, market returns are assumed if a stock has missing return data in any month during the return measurement period after portfolio formation.⁸

We first use Fama–MacBeth regressions to document the relative predictive power of cash flows and accruals on future stock returns. Table 4 reports the results. Consistent with prior literature, Models (1)–(6) show that future stock returns are negatively related to total accruals and working capital accruals but are positively related to cash flows regardless of whether size, book-to-market, and other common factors are controlled for or not. Models (7)–(8) suggest that, once controlling for the cash flow effect, total accruals or discretionary accruals have no explanatory power for future stock returns, which is consistent with Desai et al. (2004). However, Model (9) documents a significant working capital accrual effect even after controlling for cash flows. That is, both cash flows and working capital accruals explain future stock returns.

⁸ We make robustness checks by replacing missing returns with 0%, -100%, or portfolio return, or by excluding observations with missing returns from our analyses. The tenor of our results is unchanged in any case.

In Table 5, we use the portfolio approach. Panel A reports the results when stocks are sorted into ten deciles based on prior-period earnings, operating cash flows, total accruals, or working-capital accruals. Overall, each variable has some explanatory power in explaining future annual returns, but cash flows and working-capital accruals perform slightly better than the other two variables. Annual returns almost monotonically increase from 4.15% for the lowest CF decile to 20.85% for the highest CF decile. When working-capital accruals are used as the sorting variable, the returns decrease from 21.56% for the lowest WCACC decile to 6.93% for the highest WCACC decile. Similar patterns can be observed to market-adjusted returns and size-adjusted returns. The return differential between the top and bottom deciles is significant for each earnings component, suggesting each component has strong predictive power in univariate tests.

In panel B, we form ten conditional deciles based on a two-way sorting technique as in Section 3.3. To form ten working-capital accrual deciles conditional on cash flows, we sort all stocks into ten groups by cash flows, and then for each cash flow group we further sort firms into ten working capital accrual portfolios. Finally, we pool ten working-capital accrual portfolios from each of the ten cash flow groups into one working-capital accrual decile.

Table 5, panel B, shows that, after controlling for the cash flow effect, we still observe a negative relation between annual returns and working-capital accruals. The bottom WCACC decile has an annual return of 16.72% while the top decile has an annual return of 12.19%. But the magnitude of the return differential between two extreme deciles decreases dramatically from 14.63% in unconditional sorting (panel A) to 4.53% in conditional sorting (panel B). On the other hand, the cash flow effect is still strong after controlling for working capital accruals. The annual return increases from 6.29% in decile 1 to 16.82% in decile ten. The return differential is about 10% regardless of whether the raw return, market-adjusted return, or size-adjusted return is used. This indicates that investors systematically underestimate the persistence of cash flows after controlling for working-capital accruals while the explanatory power of working-capital accruals in univariate tests are partially due to the negative correlation between cash flows and accruals.

Next we sort stocks into five quintiles based on prior-year operating cash flows and then further sort each CF quintile into five portfolios based on prior-year working-capital accruals. In this way, we obtain 25 portfolios each year from 1989 to 2000. Each portfolio has an average of 122 stocks.⁹ The portfolio return is calculated as the equal-weighted average of the returns of all stocks in that portfolio.

Table 5, panel C, presents average portfolio returns for these 25 portfolios. A few regularities are evident regardless of whether returns are measured as the raw, market-adjusted or size-adjusted returns. First, returns increase almost monotonically as we move from low-CF to high-CF portfolios in each WCACC group. On the other dimension, returns decrease from low-WCACC to high-WCACC portfolios. A trading strategy with a long position in high-CF and low-WCACC portfolios and a short position in low-CF and

⁹ Again, the sorting order does not play a significant role here. Similar results are obtained when we first sort stocks by working-capital accruals and then by cash flows or when we choose independent sorting.

Table 5
Average annual returns for portfolios based on prior year's cash flow and working capital accruals

Panel A: annual returns (RET_t) for ten deciles based on X_{t-1} , CF_{t-1} , ACC_{t-1} , or $WCACC_{t-1}$										
Sorting variable	Decile 1 (low)	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10 (high)
<i>Raw returns</i>										
X_{t-1}	9.92%	13.98%	10.90%	13.42%	14.14%	12.14%	14.20%	13.57%	15.90%	14.90%
CF_{t-1}	4.15%	10.76%	10.64%	13.34%	12.90%	14.01%	15.01%	15.65%	15.77%	20.85%
ACC_{t-1}	17.15%	18.20%	15.56%	14.22%	12.87%	13.18%	13.35%	11.82%	9.91%	6.82%
WC	21.56%	15.13%	13.46%	12.47%	12.64%	12.31%	12.53%	13.96%	12.11%	6.93%
ACC_{t-1}										
<i>Market-adjusted returns</i>										
X_{t-1}	0.36%	4.27%	1.35%	3.40%	4.12%	2.42%	4.42%	3.68%	5.68%	5.17%
CF_{t-1}	-4.62%	1.27%	1.07%	3.47%	3.03%	4.13%	5.03%	5.29%	5.88%	10.31%
ACC_{t-1}	7.01%	7.64%	5.58%	4.17%	2.93%	3.38%	3.40%	2.21%	0.36%	-1.81%
WC	10.73%	4.91%	3.51%	2.51%	2.75%	2.63%	2.62%	4.19%	2.66%	-1.62%
ACC_{t-1}										
<i>Size-adjusted returns</i>										
X_{t-1}	0.63%	3.57%	0.31%	2.24%	2.71%	1.20%	3.00%	2.81%	4.83%	4.42%
CF_{t-1}	-4.59%	0.43%	0.03%	2.60%	1.75%	3.01%	4.03%	4.07%	5.07%	9.33%
ACC_{t-1}	6.77%	6.92%	4.57%	3.06%	1.88%	2.28%	2.57%	0.94%	-0.68%	-2.57%
WC	10.07%	3.96%	2.36%	1.57%	1.71%	1.75%	1.68%	3.14%	1.77%	-2.25%
ACC_{t-1}										
Panel B: annual returns and selected firm characteristics for ten conditional deciles based on CF_{t-1} and $WCACC_{t-1}$										
Variable	Decile 1 (low)	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10 (high)
<i>Ten working-capital-accrual deciles conditional on cash flows</i>										
RET_t	16.72%	15.83%	13.84%	11.20%	13.35%	13.48%	10.57%	14.08%	11.94%	12.19%
$RET_t - R_m$	6.28%	5.35%	3.83%	1.40%	3.53%	3.77%	1.03%	4.25%	2.52%	3.01%
$RET_t - R_{size}$	5.75%	4.21%	2.92%	0.54%	2.49%	2.70%	0.16%	2.96%	1.61%	2.50%
CF_{t-1}	7.71%	7.71%	7.89%	7.94%	8.06%	8.00%	8.37%	8.30%	8.11%	7.77%
WC	-7.82%	-3.04%	-1.35%	-0.16%	0.93%	2.11%	3.34%	4.81%	6.88%	11.75%
ACC_{t-1}										
<i>Ten cash flow deciles conditional on working-capital accruals</i>										
RET_t	6.29%	9.44%	12.00%	13.82%	13.46%	13.42%	14.91%	17.21%	15.69%	16.82%
$RET_t - R_m$	-3.00%	0.08%	2.14%	3.85%	3.62%	3.61%	5.32%	6.92%	5.53%	6.76%
$RET_t - R_{size}$	-3.00%	-0.76%	1.08%	2.69%	2.42%	2.45%	4.28%	5.90%	4.63%	6.01%
CF_{t-1}	-15.3%	0.68%	4.06%	6.14%	7.83%	9.52%	11.50%	13.77%	17.01%	24.51%
WC	2.05%	2.11%	1.97%	1.88%	1.77%	1.70%	1.61%	1.53%	1.49%	1.39%
ACC_{t-1}										

(continued on next page)

Table 5 (continued)

Panel C: mean portfolio returns for 25 portfolios sorted on CF_{t-1} and $WCACC_{t-1}$

	CF1 (low)	CF2	CF3	CF4	CF5 (high)	CF5 – CF1
<i>Raw returns</i>						
WCACC1 (low)	8.03%	13.18%	14.59%	18.49%	27.06%	19.03%** (5.87)
WCACC2	8.71%	9.72%	15.04%	15.04%	17.74%	9.03% (1.69)
WCACC3	7.82%	13.48%	11.57%	14.30%	17.09%	9.27%** (2.45)
WCACC4	6.47%	13.28%	12.19%	13.90%	14.28%	7.81%** (2.66)
WCACC5 (high)	6.27%	10.29%	13.90%	14.93%	15.41%	9.14%** (2.37)
WCACC1–	1.76%	2.89%	0.69%	3.56%	11.66%**	
WCACC5	(0.41)	(0.66)	(0.27)	(1.20)	(2.49)	
<i>Market-adjusted returns</i>						
WCACC1 (low)	– 1.39%	2.77%	4.33%	7.61%	15.70%	17.09%** (5.36)
WCACC2	– 0.99%	0.23%	4.98%	5.19%	7.56%	8.55% (1.66)
WCACC3	– 1.74%	3.52%	1.77%	4.39%	6.82%	8.56%** (2.41)
WCACC4	– 2.15%	3.73%	2.72%	3.91%	4.24%	6.39%* (2.18)
WCACC5 (high)	– 2.08%	1.11%	4.12%	4.71%	6.21%	8.29%* (2.25)
WCACC1–	0.69%	1.66%	0.21%	2.90%	9.49%*	
WCACC5	(0.17)	(0.38)	(0.09)	(1.11)	(2.11)	
<i>Size-adjusted returns</i>						
WCACC1 (low)	– 1.28%	2.00%	3.15%	6.31%	14.83%	16.11%** (4.74)
WCACC2	– 0.77%	– 0.88%	3.52%	3.72%	6.47%	7.23% (1.36)
WCACC3	– 2.34%	2.88%	0.27%	3.11%	5.92%	8.26%** (2.37)
WCACC4	– 3.24%	2.30%	1.85%	2.98%	3.53%	6.77%** (2.98)
WCACC5 (high)	– 2.76%	0.30%	3.13%	4.15%	5.29%	8.04%** (2.40)
WCACC1–	1.48%	1.70%	0.02%	2.17%	9.55%*	
WCACC5	(0.36)	(0.43)	(0.01)	(0.79)	(2.10)	

* and ** indicate significance at the 5% and 1% level, respectively.

Portfolios are formed based on X_{t-1} , CF_{t-1} , ACC_{t-1} , or $WCACC_{t-1}$, which are defined as in Table 1. In Panel A, stocks are sorted into ten equal-size deciles. In Panel B, a two-way sorting technique is used to control cash flow (CF) or working-capital accruals (WCACC). To form ten WCACC deciles conditional on CF, all stocks are sorted into ten CF groups and each CF group is further sorted into ten WCACC portfolios. Finally, all ten WCACC portfolios of each CF group are pooled together into one decile. A similar method is applied to the ten CF deciles conditional on WCACC. In Panel C, stocks are first sorted into five CF groups and then each CF group is further sorted into five WCACC portfolios. Stocks with prices less than five dollars at the time of portfolio formation are excluded, so are all financial firms ($6000 \leq \text{DNUM} \leq 6999$). Annual returns (RET_t) are calculated from the start of the fifth month subsequent to the end of the fiscal year in which cash flows and accruals are measured. Missing returns after portfolio formation are replaced with market returns in order to avoid the survival bias. Market-adjusted returns are calculated by deducting the value-weighted market-portfolio return from the raw returns. Size-adjusted returns are calculated by deducting the equal-weighted returns of matched size decile from the raw returns, where size is measured as market capitalization. There are 36,628 firm-year observations from 1989 to 2000, and therefore each portfolio has an average of 305, 305, and 122 firms each year in Panel A, B, and C, respectively. The top and bottom 1% of CF_{t-1} and $WCACC_{t-1}$ are winsorized.

high-WCACC portfolio generates an average of 20.79% annual returns.¹⁰ As shown in Fig. 2, returns from this trading strategy are uniformly positive in every year in our sample, suggesting that it is unlikely to be explained by a risk factor.

¹⁰ We do not take into account transaction costs, which could be substantial. Additionally, the trading strategy is not implementable because we include firms with non-December fiscal year-ends. Unreported analysis on firms with December fiscal year-ends shows similar results.

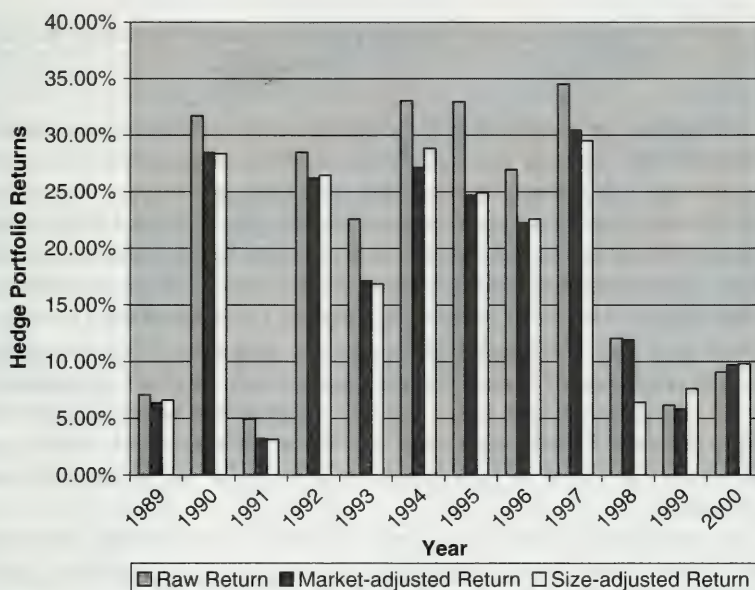


Fig. 2. Returns to a trading strategy with a long position in high cash flow and low working capital-accrual quintiles and a short position in low cash flow and high working capital-accrual quintiles. Stocks are first sorted into five quintiles based on prior year cash flows and then each cash flow quintile is further sorted into five working capital accrual quintiles. Cash flows and working-capital accruals are as defined in Table 1. Stocks with prices less than five dollars at the time of portfolio formation are excluded. Annual returns are calculated from the start of the fifth month subsequent to the end of the fiscal year in which cash flows and accruals are measured. Market-adjusted returns are calculated by deducting the value-weighted market-portfolio return from the raw returns. Size-adjusted returns are calculated by deducting the equal-weighted returns of matched-size decile from the raw return, where size is measured as market capitalization.

Second, the cash flow effect is significant in four out of five WCACC groups while the working-capital accrual effect has the predicted sign in each CF group but it is only significant in one case.

Third, cash flows have the biggest effect in the lowest WCACC group while the working-capital accrual effect is most evident in the highest CF group. Given that earnings equal cash flows plus working-capital accruals and long-term accruals, and that long-term accruals are quite stable over time, this suggests that investors are more likely to underestimate the persistence of cash flows and overestimate the persistence of working-capital accruals when earnings are of “high quality.”¹¹ Taken together, these results indicate that cash flows and working-capital accruals have an incremental effect beyond each other but the cash flow effect is stronger.

¹¹ Anecdotal evidence suggests that the investor community believes that the cash flow component is of higher quality than the accrual component.

3.6. Cash flow and working capital accrual portfolio returns based on the four-factor model

In this subsection, we test whether the cash flow and working-capital accrual effects can be explained by common risk factors documented in empirical finance literature and to examine the relative magnitude of the cash flow and accrual effects. Fama and French (1996) show that their three-factor model ($R_m - R_f$, SMB, and HML) can explain most commonly documented CAPM anomalies except for the continuation of short-term returns. They argue that the three-factor model works like an equilibrium-pricing model in the spirit of Merton's (1973) inter-temporal CAPM or Ross's (1976) arbitrage pricing theory and that SMB and HML mimic combinations of two underlying risk factors or state variables of special hedging concern to investors. Empirically, SMB represents the size premium and equals the return differential between small stocks and large stocks. Similarly, HML represents the value premium and equals the return differential between stocks with high book-to-market ratios and stocks with low book-to-market ratios.

Since the momentum effect is the only commonly documented anomaly that is unexplained by the Fama–French three-factor model, we use a four-factor model (e.g., Carhart, 1997) to test portfolio returns. If the four-factor model captures the variation in stock returns, the intercept from the following regression should be close to zero.

$$R_{it} - R_{ft} = \alpha + b_{iM}(R_{Mt} - R_{ft}) + s_i \text{SMB}_t + h_i \text{HML}_t + m_i \text{UMD}_t + \varepsilon_{it}$$

where $R_{it} - R_{ft}$ is the return of portfolio i in excess of the risk-free rate in month t , $R_{Mt} - R_{ft}$ is the market-excess return, SMB is small-minus-big, HML is high-minus-low, and UMD is up-minus-down and equals the return difference between a portfolio of top 30% stocks and a portfolio of bottom 30% stocks based on past returns from month $t - 11$ to $t - 1$.¹²

We use two-way sorting to form portfolios based on cash flows and working-capital accruals. For any given firm-year, cash flows and working-capital accruals act as the sorting variables for 12 months starting from the fifth month subsequent to the fiscal year. Each month, we assign stocks into five quintiles based on prior-year cash flows, and each cash flow quintile is further sorted into five portfolios based on prior-year working-capital accruals. After assigning stocks into portfolios, stocks are held for one month. We calculate the monthly portfolio return as the equal-weighted average of the returns of all the stocks in the portfolio. Each of the 25 resulting portfolios contains an average of 108 stocks.¹³

Table 6, panel A, presents the intercept estimates of the four-factor model on 25 portfolios. A striking pattern emerges. The intercepts from the four-factor model almost decrease monotonically from low-WCACC to high-WCACC portfolios in each CF

¹² The Fama–French three factors are downloaded from Ken French's website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. UMD is constructed in the same way as in Carhart (1997).

¹³ The number of stocks in each portfolio is slightly smaller than that in Table 4 because here we use monthly returns and accordingly exclude all observations with missing returns.

Table 6
A four-factor model on portfolio returns based on prior period cash flows and working-capital accruals

	CF1 (low)	CF2	CF3	CF4	CF5 (high)
<i>Panel A: intercepts of the four-factor model when stocks are first sorted by CF and then by WCACC</i>					
WCACC1 (low)	0.031 (0.10)	0.028 (0.18)	0.381** (2.65)	0.404** (3.09)	0.966** (6.07)
WCACC2	−0.260 (−0.94)	−0.212 (−1.38)	0.202 (1.51)	0.194 (1.48)	0.461** (2.71)
WCACC3	−0.381 (−1.73)	−0.020 (−0.15)	−0.032 (−0.25)	0.213 (1.59)	0.462** (3.09)
WCACC4	−0.404* (−2.01)	−0.128 (−0.81)	−0.015 (−0.11)	0.163 (1.05)	0.352* (2.24)
WCACC5 (high)	−0.619** (−3.23)	−0.137 (−0.70)	0.089 (0.52)	0.188 (1.04)	0.225 (1.19)
<i>Panel B: intercepts of the four-factor model when stocks are first sorted by WCACC and then by CF</i>					
WCACC1 (low)	−0.011 (−0.04)	0.497** (3.04)	0.325* (2.30)	0.457** (2.84)	1.002** (6.15)
WCACC2	−0.032 (−0.14)	−0.051 (−0.36)	0.172 (1.62)	0.247 (1.85)	0.378** (2.55)
WCACC3	−0.227 (−1.24)	0.008 (0.06)	0.031 (0.24)	0.118 (0.79)	0.446** (2.65)
WCACC4	−0.415* (−2.10)	−0.008 (−0.05)	−0.008 (−0.05)	0.111 (0.72)	0.237 (1.32)
WCACC5 (high)	−0.768** (−2.95)	−0.185 (−1.20)	−0.434** (−2.77)	0.095 (0.49)	0.187 (0.97)

* and ** indicate significance at the 5% and 1% level, respectively.

This table reports the intercept estimates of a four-factor model for monthly excess returns on the equal-weighted cash flow and working-capital-accrual portfolios.

$$R_{it} - R_{ft} = \alpha + b_{iM}(R_{Mt} - R_{ft}) + s_i \text{SMB}_t + h_i \text{HML}_t + m_i \text{UMD}_t + \varepsilon_{it}$$

The monthly excess return ($R_{it} - R_{ft}$) is the return for portfolio i in excess of the risk-free rate in month t . The market premium ($R_{Mt} - R_{ft}$), size premium (SMB), and value premium (HML) are from Kenneth French's website. The momentum premium (UMD) is created using the same methodology as Carhart (1997) and is the return difference between a portfolio of the top 30% stocks and a portfolio of the bottom 30% stocks based on past returns from month $t - 11$ to month $t - 1$.

Cash flow (CF) and working-capital accruals (WCACC) act as sorting variables for 12 months starting from the fifth month subsequent to the fiscal year. In Panel A, each month stocks are first sorted into five groups by CF and then, for each CF group, stocks are sorted into five WCACC portfolios. In Panel B, stocks are first sorted into five WCACC groups and then each WCACC group is further sorted into five CF portfolios. Stocks with prices less than five dollar at the beginning of the month are excluded, so are all financial firms (6000 ≤ DNUM ≤ 6999). Stocks are held for one month, and portfolio returns are equal-weighted. The sample period is from May 1989 to April 2001 (t -statistics in parentheses).

quintile. On the other hand, the intercepts increase monotonically from low-CF to high-CF portfolio in each WCACC quintile. The intercepts are significantly negative for two low-CF and high-WCACC portfolios but highly positive for six high-CF and low-WCACC portfolios, and reach the minimum and maximum values in two corner portfolios, with −0.619 for the lowest-CF and highest-WCACC portfolio and 0.966 for the highest-CF and lowest-WCACC portfolio, respectively.

These significant intercepts suggest that low-CF and high-WCACC firms earn negative abnormal returns while high-CF and low-WCACC stocks have positive abnormal return in a four-factor world. The positive intercepts for high-CF portfolios and negative ones for high-WCACC portfolios suggest that investors underestimate the persistence of cash flows but overestimate the persistence of working-capital accruals after controlling for other

factors. As a result, investors adjust the price up for high-CF stocks and down for high-WCACC firms as more information becomes available later.

To gauge the economic significance of these effects, consider a trading strategy with a long position in the highest-CF and lowest-WCACC portfolio and a short position in the lowest-CF and highest-WCACC portfolio. This trading strategy yields average abnormal returns of 1.585% ($=0.966+0.619$) per month, of which cash flows contribute 60.95% ($=0.966/1.585$) and working capital accruals contribute 39.05%. For the remaining 17 portfolios, the intercepts are insignificantly different from zero, indicating that the four-factor model explains these portfolio returns reasonably well.

The risk loadings on risk factors (not tabulated) are generally as expected. The market-factor loadings are uniformly close to one, with *t*-statistics close to 20. Low-CF portfolios typically have higher loadings on SMB, suggesting that these portfolios may have more small stocks. The risk loadings on HML and UMD do not have a monotonic pattern, which indicates that cash flows and working-capital accruals are not highly correlated with book-to-market ratios and past returns. The average adjusted R^2 is about 88%, suggesting a reasonable explanatory power of the four-factor model for portfolio returns.

In the above analyses, we first sort stocks by operating cash flows and then by working-capital accruals. One concern with this sorting technique is that the sorting order might play a role in explaining the relative effects of cash flow and working-capital accruals on abnormal stock returns. To mitigate this concern, we repeat the analyses after first sorting stocks by working-capital accruals and then by cash flows. Panel B shows that our results are robust to changing the sorting order. We observe similar monotonically increasing pattern of intercepts from low-CF to high-CF and from high-WCACC to low-WCACC portfolios. The same trading strategy generates 1.77% monthly abnormal returns, among which 56.61% are attributed to cash flow and 43.39% are attributed to working-capital accruals.

Overall, these results suggest that investors underestimate the persistence of operating cash flows and overestimate the persistence of working-capital accruals. As a result, high operating cash flows predict high future returns while high working-capital accruals predict low future returns. Operating cash flow and working-capital accruals have distinct effects, but the cash flow effect is approximately 40% larger than the working-capital accruals effect.¹⁴ The distinct effects of cash flows and accruals support Sloan (1996) and Bradshaw et al. (2001), in the sense that the accrual anomaly still exists even after controlling for cash flows and commonly documented risk factors, and is inconsistent with the Desai et al. (2004) conclusion that the mispricing attributed to accruals is just a manifestation of the mispricing related to the cash flow-to-price proxy of the value-glamour phenomenon.

4. Conclusion

We study two groups of market participants—financial analysts and investors—in their assessment of the persistence of accruals and cash. We expect that both sets of analysts and

¹⁴ The average contribution of cash flows on the trading strategy of abnormal returns is 58.78% [$=(60.95\%+56.61\%)/2$], while that of working capital accruals is 41.22% [$=(39.05\%+43.39\%)/2$], which implies the cash flow effect is 42.6% larger than the working-capital accruals.

investors will tend to overweight accruals and underweight cash flows. Further, we provide evidence on the relative strength of the two effects after controlling for the well-known negative correlation between accruals and cash flows.

We use a regression approach and a portfolio approach to address our research questions. Both approaches provide consistent evidence that financial analysts and investors overestimate the persistence of (working capital) accruals but underestimate the persistence of cash flows. The working-capital accrual and cash flow effects are distinct from each other in the sense that, when we control for one effect, the other effect still holds. In terms of magnitude, we find that the cash flow effect on forecast errors and subsequent returns is much stronger than the working-capital accrual effect.

Our paper contributes to the literatures examining the efficiency of stock prices and analyst forecasts to prior-period accounting information in several ways. First, prior studies have not examined analyst-forecast inefficiencies with respect to prior-period operating cash flows after controlling for the negative correlation between accruals and cash flows. Second, with the exception of Desai et al. (2004), prior studies have not examined investor mispricing of cash flows after controlling for mispricing of accruals.

We provide evidence on mispricing of cash flows after controlling for the negative accrual–cash flow correlation and extend Desai et al. (2004) by documenting that cash flows subsume total accruals or discretionary accruals but not working-capital accruals.

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International lease-accounting reform and economic consequences: The views of U.K. users and preparers

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Abstract

In response to perceived difficulties with extant lease-accounting standards in operation worldwide, the G4+1 issued a discussion paper which proposes that *all* leases should be recognized on the balance sheet [ASB (1999). *Leases: Implementation of a new approach*, discussion paper. London: Accounting Standards Board]. Leasing is now on the active agenda of the IASB. A major difficulty faced by standard setters lies in overcoming the preparer/user lobbying imbalance and obtaining *ex ante* evidence on the likely impact of regulatory reform. This paper contributes to the ongoing international debate by conducting a questionnaire survey of U.K. users and preparers to assess their views on proposals for lease-accounting reform and on the potential economic consequences of their adoption. The results, based on 132 responses, indicate that both groups accept that there are deficiencies in the current rules, but they do not agree on the way forward and believe that the proposals would lead to significant economic consequences for key parties. The impact on respondents' views of familiarity with the proposals, level of lease usage, and company size, is also examined.

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1. Introduction

In many countries, operating leases represent a significant source of finance for many companies, far exceeding the significance of finance leases. For example, it has recently been estimated that, for the top 100 listed U.K. companies, the median ratio of operating-lease liability to debt is 0.11 and the median ratio of operating-lease liability to finance-lease liability is 6.2 (Beattie, Goodacre, & Thomson, 2004).¹ Internationally, key leasing standards distinguish finance leases from operating leases, finance leases being defined as those which transfer substantially all the risks and rewards of ownership to the lessee. The accounting treatment depends on the lease classification, with only finance leases being capitalized.

Concerns regarding the off-balance-sheet nature of operating leases, the different treatment of similar transactions and the “all or nothing” approach have led many standard-setting bodies to consider treating all leases consistently. This culminated in a G4+1 discussion paper “Leases: implementation of a new approach” (ASB, 1999), which adopts a “property rights” perspective and proposes that *all* leases should be recognized on the balance sheet, rather than just finance leases.² Leasing is now on the active agenda of the IASB and the U.K. accounting standard-setting body was asked to undertake a project to inform the IASB, which expects to take action in 2006/07 (IASB, 2005). The IASB has tentatively agreed with the G4+1 approach of analyzing the contractual rights and obligations arising from lease contracts (ASB, 2004).

The different accounting treatments have important implications for reported levels of indebtedness and for standard performance measures. Profit margins, return on assets, and gearing measures would all be significantly affected if operating leases were required to be recognized on the lessee’s balance sheet rather than merely disclosed in a footnote (Beattie, Edwards, & Goodacre, 1998; Goodacre, 2003; Imhoff, Lipe, & Wright, 1991). It is not surprising, therefore, that the G4+1 proposals are controversial and have already generated a significant negative response from groups, in particular lessors and high-use operating-lease lessees, who fear that they would cause major adverse economic consequences.

Certain major interested parties, such as preparers, audit firms and other groups (here, for example, the lessor group), are well organized to lobby the standard setters to ensure that their group’s views are heard. However, users are generally a wider, more diverse, less organized group with less focus and often less technical knowledge for lobbying activities. It is widely recognized that a major difficulty faced by accounting standard setters worldwide lies in obtaining the views of *users* of financial statements (Collins, Davie, & Weetman, 1996; Herz, 2003; Jonas & Young, 1998).

This paper contributes to the ongoing international debate concerning lease-accounting reform by reporting the results of a questionnaire survey sent to users (investment analysts) and preparers (finance directors). The objectives of the research are to elicit and compare

¹ This relates to 2002/03 year-ends. Mean figures are even higher: 0.70 and 95.3, respectively.

² The G4+1 group of standard setters (now a defunct body) comprised the standard-setting bodies of Australia, Canada, New Zealand, the U.K. and the U.S., as well as the IASC.

the views of both groups on a comprehensive range of issues surrounding lease-accounting reform. The issues are: views on accounting standards generally; deficiencies in the current U.K. standard; the general principles underlying the G4+1 proposals; the specific proposals regarding complex features of lease contracts; economic consequences; alternative proposals; and implementation. The impact on views of three background characteristics is also examined: respondents' declared familiarity with the proposals (for both users and preparers); level of lease usage (preparers only); and company size (preparers only). The study represents policy-relevant *ex ante* research in support of the standard-setting process of the type advocated by Schipper (1994).

To provide some context for the present study, it should be noted that institutional differences are believed to affect corporate financing decisions. As leasing decisions are part of the overall financing decision, it is to be expected that these differences would also impact leasing decisions and hence interested parties' views about lease-accounting reform. The United Kingdom can be characterized as having a broadly similar financial and legal environment to the United States. It has a common law legal system with good investor protection and well-developed, liquid financial markets. Bank finance and inter-company ownership relationships play relatively smaller roles than in some countries. The most obvious differences between the United Kingdom and United States (apart from the relatively great size of the U.S. market in terms of number of companies and market capitalization) relate to tax and bankruptcy codes and the size of the corporate bond market (Rajan & Zingales, 1995). La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998) consider that a country's legal system is the main determinant of external finance availability.

The remainder of the paper is structured as follows. Section 2 first provides a brief discussion of the current and proposed methods of accounting for leases. It then reviews three strands of literature relevant to the debate on lease-accounting reform: the preparer/user lobbying imbalance; the quality of accounting standards; and various approaches to the assessment of economic consequences. The section ends with the presentation of the specific research questions addressed in the current study. Section 3 outlines the methods employed, including sampling and data collection procedures. Results are presented in Section 4. A final section summarizes and concludes.

2. Literature

2.1. *Lease accounting: extant regulations and proposals*

The international leasing standard (IAS 17 "Leases") is typical of many extant standards worldwide. It makes a fundamental distinction between finance leases and operating leases, defining a *finance* lease as one that transfers to the lessee substantially all the risks and rewards of ownership (IASB, 2003). It is treated as an "in substance" purchase by the lessee and sale by the lessor. An asset is shown on the lessee's balance sheet at the present value of the minimum lease payments and a corresponding liability is recognized. An *operating* lease is any other lease. The underlying asset appears in the balance sheet of the lessor and the lessee simply recognizes the rental payments as an expense, with additional

footnote disclosure regarding total minimum future lease-rental commitments, with this commitment being classified into time-horizon categories (less than one year, two to five years and more than five years).

The equivalent U.S. standard (SFAS 13), which uses the term “capital lease” rather than “finance lease,” introduces “bright lines” into lease classification. It defines a capital lease as one under which any one of the following four conditions is met: (i) the present value at the beginning of the lease term of the payments not representing executory costs paid by the lessor equals or exceeds 90% of the fair value of the leased asset; (ii) the lease transfers ownership of the asset to the lessee by the end of the lease term; (iii) the lease contains a bargain purchase price; (iv) the lease is equal to 75% or more of the estimated economic life of the leased asset (FASB, 1976). The U.K. standard (SSAP 21) also includes a bright line classification test. Under SSAP 21, a lease is presumed to be a finance lease if the present value of the minimum lease payments at the inception of the lease amount to substantially all (normally 90% or more) of the fair value of the leased asset (ASC, 1984).³

Bright-line rules such as these found in the U.S. and U.K. standards carry the danger of creative compliance (i.e., the use of rules to escape control without actually violating those rules). “Formalism” in standard setting implies a narrow approach to control (i.e., the use of clearly defined rules), whereas “anti-formalism” involves the use of principles (McBarnet & Whelan, 1991, 1992, 1999).

In 1996, the G4+1 published a special report entitled “Accounting for leases: A new approach” (McGregor, 1996). Three fundamental deficiencies in existing lease-accounting standards were identified. First, material assets and liabilities arising from “off-balance-sheet” operating-lease contracts are omitted. Second, similar transactions do not receive the same accounting treatment since marginal differences in contractual terms can result in one lease being claimed as a finance lease and another as an operating lease. This illustrates the weakness of so-called “bright line” standards. Third, the “all or nothing” approach to the capitalization of leased assets does not adequately reflect modern complex transactions. A conceptual approach to lease accounting is advocated, whereby the distinction between finance leases and operating leases is removed. Lessees would recognize as assets and liabilities *all* material rights and obligations arising under lease contracts.

Three years later, the G4+1 organizations published a discussion paper “Leases: implementation of a new approach,” which develops the approach recommended in the special report (ASB, 1999). It reiterates the view that all leases should be reflected in financial statements in a consistent manner and it explores the principles that should determine the extent of the assets and liabilities to be recognized by lessees and lessors. The discussion paper recommends that, at the beginning of a lease, the lessee recognizes an asset and a liability equivalent to the fair value of the rights and obligations that are conveyed by the lease. This is usually the present value of the minimum payments required by the lease. Subsequently, the lease asset and liability would be treated as fixed

³ Under SFAS 13, the total minimum future operating-lease rentals are shown separately for each of the first five years and combined thereafter. Under SSAP 21, it is only the next year's (rather than total) minimum future operating-lease rentals that must be disclosed, analyzed according to the period in which the annual commitment expires (less than one year, two to five years, and more than five years). This is further analyzed by asset category (“land and buildings” and “other assets”).

assets and debt. The other party to the transaction, the lessor, would report financial assets (representing amounts receivable from the lessee) and residual interests (if any) as separate assets. Although lease contracts often include features such as renewal options, contingent rentals, and residual value guarantees, the discussion paper considers ways of dealing with these and other features. Essentially, the paper calls for the capitalization of the measurable future benefits and obligations for all lease transactions.

Looking forward, it seems clear that the international convergence of accounting standards is going to happen. A change in one standard is likely to impact on the standards for other jurisdictions. The introduction of International Financial Reporting Standards (IFRS) for listed companies in the European Union occurred in 2005 (with limited exceptions). In the United Kingdom, the ASB has stated, in its consultation paper on U.K. convergence, that it will not replace SSAP 21 with a standard based on IFRS requirements until the IASB completes its leasing project (although in the short term it does propose to adopt IAS 17 disclosure requirements). In the US, FASB agreed with the IASB to work towards the convergence of United States GAAP and IFRS at a joint meeting in 2002 (Schipper, 2005).

2.2. The preparer/user lobbying imbalance

In recent years, there has been increasing recognition that users' views regarding accounting standards are seriously under-represented. Collins et al. (1996) report that only 14 of the 104 letters of comment to the U.K. ASB regarding the OFR discussion paper were from users, and suggest that this imbalance must be remedied by seeking out users' views explicitly. Jonas and Young (1998) argue that quality in business reporting is being undermined by the systemic problem of insufficient user focus in the process of setting reporting standards. One of the explanations they offer for the under-representation is that the professional background of standard setters tends to be as preparers/auditors rather than users, making it difficult for them to "bridge the gap." More recently, the chairman of the U.S. standard-setting body (FASB) has suggested that it may be overly influenced by the preparer and auditor communities, identifying the low level of involvement by users as a challenge for the FASB (Herz, 2003).

Academic studies that survey attitudes to accounting standards have generally targeted preparers as the respondent group and have been conducted ex post. For example, Hooks and van Staden (2004) survey preparers in New Zealand to elicit their views on FRS 15 "Provisions, contingent liabilities and contingent assets." Joshi and Ramadhan (2002) survey Bahrainian preparers on issues surrounding IASs. Nixon (1997) surveys U.K. preparers' views on SSAP 13 (revised) "Accounting for research and development" and an alternative suggested treatment whereby more expenditure would be capitalized. It is notable that views are also elicited regarding the economic consequences of expensing R&D. Reither (1998) surveys participants at the 1996 AAA/FASB Financial Reporting Issues Conference to establish which standards were viewed as the best and the worst.⁴

⁴ The pre-conference questionnaire was completed by 57 participants (33 academics, 12 FASB employees, seven public accountants, three analysts, and two regulators).

User surveys have tended to address user needs in terms of the importance of specific information items, whether currently reported or not (for a recent example, see Beattie & Pratt, 2002). Yap (1997) is one of the few studies to investigate users' attitudes to a particular extant standard, specifically the Australian standard on cash flow statements. Dunne et al. (2003) interview users and preparers about FRS 13 "Derivatives and other financial instruments — disclosures." There is, however, a dearth of academic research that surveys users' views on specific *proposals* for regulatory reform.

The need for such research is further indicated by the fact that, of the 59 formal responses to the G4+1 discussion paper received by the ASB, just three (5%) were from users or user groups. Based on another simple measure (number of pages of response), users contributed just 7% of the overall response. Since recent research suggests that the level of other forms of lobbying is highly correlated with the use of formal comment letters (Georgiou, 2004), the absolute differential between the overall level of preparers and users lobbying could be huge.

2.3. *Quality of accounting standards*

The former chairman of the U.S. Securities and Exchange Commission has identified high quality standards as critical to financial reporting, going on to explain that "they must result in comparability and transparency, and they must provide for full disclosure" (Levitt, 1998, p.81). Following this, *Accounting Horizons* published six commentaries, from senior representatives of a range of constituencies, on the attributes of high quality accounting standards (Imhoff, 1998). Interestingly, in Reither's (1998) survey, SFAS 13 "Leases" was voted the worst standard. Explanations given included the following: many obligations that, in substance, are capital, sales-type, or direct financing leases are shown as operating leases; conceptually and operationally an accounting nightmare; bright-line rules for lease capitalization result in abuse; and too complicated.

Collins, Pasewark, and Strawser (2002) link empirically the normative qualities reflected in the commentaries with the actual judgments of constituents. Using content analysis, they identify 16 unique characteristics. The particular characteristics of SFAS 13 that led it to be considered the worst standard were found to be lack of economic reality, lack of clarity, lack of implementation guidance, and the need for frequent amendment.

2.4. *Economic consequences*

For over two decades, economic-consequence arguments have been used by lobbying groups. Economic consequences arise when changes in the information set reported affects a company's cash flows or its distribution (Holthausen & Leftwich, 1983). This can occur in two ways. First, there may be changes in either the behavior of users or the behavior of managers. The latter includes actions to mitigate the expected impact on users, a situation known as "information inductance" (Prakash & Rappaport, 1977). Second, the company's formal or informal contracts may be affected. The identification and measurement of economic consequences are, however, problematic. Researchers have used four different empirical methods: the analysis of archival accounting data; market-based studies; experimental studies, and surveys.

First, the archival method either compares the accounting numbers before and after a change in the accounting rules (an *ex post* study) or constructs pro-forma accounting statements based on proposed rule changes and compares these with the statements under extant rules (an *ex ante* study). In an early *ex post* study, Abdel-khalik (1981) found that company management responded to the introduction of SFAS 13 by structuring new lease contracts, and renegotiating existing lease contracts, to avoid capitalization of leases. There was evidence that more assets were bought, or constructed, instead of being leased and also evidence of changes in capital structure. Imhoff and Thomas (1988) also examined capital-structure changes in response to SFAS 13, documenting a systematic substitution from finance (capital) leases to operating leases and non-lease sources of finance. In an Australian study, Godfrey and Warren (1995) found a similar substitution effect. However, in contrast with the United States, companies did not appear to have renegotiated finance-lease contracts to operating leases. In the United Kingdom, Garrod (1989) found that managers reacted to the introduction of SSAP 21 by reducing their non-lease debt prior to first disclosure of their lease information.

There are also several *ex ante* studies based on accounting numbers, specifically accounting ratios that are used as key performance indicators. Nelson (1963) examined the impact of lease capitalization on the debt–equity ratio of 11 U.S. companies, finding a significant change in the rankings. Ashton (1985) estimated the effect of finance-lease capitalization on six ratios for 23 U.K. companies, finding a significant impact only on the gearing ratio. More recent studies focus on the impact of operating-lease capitalization. Imhoff et al. (1991) develop a method for the constructive capitalization of operating leases, using this to estimate the impact on two ratios (return on assets and debt–equity ratio) for 14 U.S. companies. Material differences are found for both high- and low-use operating-lease companies. A subsequent paper found the income effects to be substantial and unpredictable in direction (Imhoff, Lipe, & Wright, 1997). Beattie et al. (1998) and Goodacre (2003) analyze U.K. data using the Imhoff et al. (1991) method, adapted to suit the U.K. setting. Both studies examine nine ratios: profit margin, three return ratios, asset turnover and four gearing measures. Beattie et al.'s (1998) findings, based on 1994 data for 232 industrial and commercial companies, show a significant impact for all ratios except return on capital employed and interest cover. One gearing measure showed a massive 260% change following capitalization. The findings for the 102 companies in the retail sector were even more marked, with all nine ratios showing a significant change (Goodacre, 2003). Dresdner Kleinwort Benson (1998) examine the impact of operating-lease capitalization on 27 large U.K. retail companies, using a simple multiple of annual operating-lease rental obligations. It is reported that “net debt would be in excess of 100% of equity market capitalization in many cases.” With the exception of Ashton (1985), which may be subject to sample-selection bias, all studies reported significant impacts on ratios. However the major impact is upon risk measures, rather than performance measures.

Second, market-based studies are confined to the *ex post* study of rule changes, although it can be difficult to separate the impact of the event of interest from that of other confounding events. There is mixed evidence of market-price reaction to lease-accounting information, and this derives from tests using rather old data (El-Gazzar,

1993; Garrod, 1989; Ro, 1978). There is also little evidence of an impact on market-based risk measures (Abdel-khalik, 1981; Finnerty, Fitzsimmons, & Oliver, 1980). Other market-based studies report quite strong evidence that the market already incorporates footnote operating-lease disclosures in its assessment of equity risk in both the U.K. (Beattie, Goodacre, & Thomson, 2000) and the U.S. (Bowman, 1980; Ely, 1995; Imhoff, Lipe, & Wright, 1993).⁵

Third, experimental studies explore how individual users process lease-accounting information, in particular, whether they appear to be influenced by whether the information is recognized in the financial statements or merely disclosed in the footnotes to the accounts. The evidence is, however, very mixed (Breton & Taffler, 1995; Hartman & Sami, 1989; Gopalakrishnan & Parkash, 1996; Munter & Ratcliffe, 1983; Wilkins, 1984; Wilkins & Zimmer, 1983a,b).

Survey research may also be used to evaluate the impact of rule changes. Surveys can investigate, both *ex post* and *ex ante*, the perceptions of a range of interested groups and explore the attitudes and views that underpin changes in behavior. We are aware of only two other surveys of lease-accounting rules. Taylor and Turley (1985) investigated the opinions of U.K. preparers on lease accounting following ED29, the exposure draft that preceded SSAP 21. They found that only a minority of managers believed that internal financing or investment decisions would be significantly affected by the proposed accounting standard. However, managers believed that users' decisions, including risk assessment, were likely to be affected, suggesting that managers' behavior could be influenced by information inductance. Managers also anticipated that future lease contracts would be structured as operating leases to avoid capitalization.⁶ Blake, Salas, and Clarke (1995) surveyed a sample comprising participants attending a management-development course in Spain (including preparers of accounts and bank analysts). Spanish accounting rules have a more restrictive definition of a finance lease than found elsewhere, requiring that a purchase option exist. The brief questionnaire was limited to several yes/no questions. Preparers generally felt that the finance lease-accounting rules would result in operating leases becoming more attractive and that all leases should be accounted for as rental agreements. Bank analysts, however, did not feel that leasing activity would diminish, and a third felt that the definition of a finance lease should be expanded to include some agreements currently classified as operating.

2.5. *Research questions*

The accounting-standards-quality literature suggests three broad issues to explore with interested parties: (i) views on the current accounting standard and on the G4+1 proposals for change; (ii) views regarding a range of potential economic consequences; and (iii) factors that may explain the views held.

⁵ Further, there is evidence that at least some investment analysts and credit-rating agencies recast financial statements by calculating the assets and liabilities implicit in off-balance-sheet operating leases (e.g., Dresdner Kleinwort Benson, 1998).

⁶ A similar response was reported by Drury and Braund (1990) in their (post-SSAP 21) general survey of the leasing decision.

3. Methods

3.1. Sample selection

The sample of account preparers was based on the population of industrial and commercial U.K. listed companies. Industrial and commercial companies were selected on the basis that the majority of their leasing activity is conducted as lessees (financial companies were excluded on the basis that the majority of their leasing activity is conducted as lessors). Listed companies were selected on the basis of their economic significance. The sampling frame used was the UKQI (U.K. quoted industrials) list on *Datastream* in June 2000. The questionnaire was sent to finance directors of a systematic sample of one-third (415) of this population. The survey of users was designed to focus on expert users (equity analysts) and to cover both sell-side and buy-side analysts. The user sample was drawn from two sources. First, a systematic sample of 400 financial analysts was selected from a mailing list of the London-based associate members (totaling 1640) of the U.K. Society of Investment Professionals. A further sample of 72 was taken from a listing of leading fund-management firms published in *CA Magazine* (1999).

3.2. Questionnaire design and administration procedures

The first stage in designing the questionnaire was to review the (fairly limited) theoretical and empirical literature in the area, including previous surveys. This, together with the ASB (1999) discussion paper, was used to produce a draft questionnaire that was sent out for pilot testing. The draft questionnaire, accompanied by a covering letter, a set of pilot-testing questions and a summary of the new proposals for lease accounting, was mailed to 13 preparers and key contacts. The pilot questions asked about subject matter, length, layout, instructions for completion, and question ordering. Useful comments were received from several finance directors, the ASB, and the Finance and Leasing Association and the questionnaire content and terminology was revised accordingly. The questionnaire generally used closed-form questions and adopted a five-point Likert scale with verbal anchors. In total, the questionnaire was eight pages long (including covers) and asked for responses to 76 question elements. It was mailed out in 2000 (preparers) and 2001 (users), accompanied by an explanatory covering letter that assured the confidentiality of responses and a one-page summary of the G4+1 proposals. Many standard response-enhancing techniques were adopted: clear questionnaire layout; piloting; covering letter addressed to a specific, named individual (all finance director details were individually checked by telephone); covering letters signed individually by researchers; follow-up letters sent approximately 10 and 20 days after the initial request;⁷ stamped reply envelopes (rather than reply-paid envelopes); non-respondents asked to return the questionnaire.

⁷ Each questionnaire contained an identifying number to allow non-respondents to be followed up; thus the responses were confidential but not anonymous.

3.3. Background characteristics affecting respondents' views

In most circumstances, more weight is attached to opinions expressed by knowledgeable individuals. Given the technical, somewhat specialized, nature of lease accounting, it was considered important to check whether the mean response reflects the opinions of those who understand the technicalities. The impact of respondents' self-reported familiarity with the lease-accounting proposals on views held was investigated for both groups, by splitting them into "familiar" and "less-familiar" sub-groups.⁸

It could be argued that companies with high levels of lease usage will anticipate a greater impact on their financial statements and more significant economic consequences under the G4+1 proposals. To investigate this, the companies of preparer respondents were split into high and low operating-lease usage groups based on whether the ratio of operating-lease rentals/sales fell above and below the median level, respectively.

Preparer responses might also be associated with company size, since large and small companies typically have different financing mixes (Bevan & Danbolt, 2002; Lasfer & Levis, 1998), different negotiating power, and different administrative capabilities. Responding companies were split into large and small sub-groups based on median total-asset value.⁹

4. Results

After describing response rates and tests for bias, respondents' views are described under seven headings: accounting standards generally; deficiencies in the current lease-accounting standard; general principles of the new proposals; specific issues; economic consequences; lease-accounting alternatives; and implementation. In some instances, we posed the same basic question in different ways, to guard against sensitivity to question wording. Where essentially the same responses were obtained, only one form of the question is reported here. Some tables are presented using the logical question order appearing in the questionnaire, while others are ranked based on users' responses. Significant differences (at the 5% level) in response associated with the three background characteristics identified as being of potential relevance (familiarity with the proposals, lease usage, and company size) are reported at the end of each sub-section.¹⁰

4.1. Response rates and tests for bias

For the preparer group, 78 usable responses were received representing a response rate of 19%. An additional 13 responses were received from those who requested a copy of the

⁸ Respondents were asked to self-assess their level of familiarity with the new lease-accounting proposals by selecting one of four categories. The categories "very familiar" and "moderately familiar" were subsequently combined to form the "familiar" sub-group, while the categories "slightly familiar" and "not at all familiar" were combined to form the "less-familiar" sub-group.

⁹ Data for these additional tests were all extracted from Datastream.

¹⁰ Selected key findings are summarized in a practitioner-oriented report published by the ICAEW that overviews a range of studies in the area of leasing (Beattie et al., 2004).

questionnaire when replying to a questionnaire on a related topic¹¹, giving a total of 91 usable responses. For the user group, 41 usable replies were received representing a response rate of 9%. These rates are in line with other recent studies involving similar groups (see Beattie & Pratt, 2003, note 13, for a discussion). Given that non-response is a significant, and increasing, problem in the survey method, relatively large initial samples were used to provide a satisfactory absolute number of responses to support meaningful statistical analysis. The reasons given for non-completion suggest that the technical complexity of the lease-accounting issue was a significant factor for the user group.¹²

Three tests for response bias were performed, two relating only to the preparer group and the third relating to both respondent groups.¹³ First, responding preparer companies were compared with the population of UKQI companies on the basis of size (measured as total assets); a 2-tail *t*-test confirmed no difference between the sample and population means, even at the 10% significance level. Second, responding companies were formed into seven broad industrial groups and a chi-squared test, goodness-of-fit, confirmed that the sample companies were distributed similarly to companies in the UKQI population (chi-squared=5.92; $p=0.4321$).

Finally, the responses of early responders were compared to those of late responders for both groups, on the assumption that late responders are similar to non-responders (Oppenheim, 1966).¹⁴ As there were no particularly “key” questions in the questionnaire, a series of tests (Wilcoxon–Mann–Whitney) was conducted for each of the 74 closed-form question elements. For the preparer group, no significant differences were observed. For the user group, only six differences were observed out of 74, which is not indicative of any systematic difference between the early and late respondents.

A further factor that can affect the validity of responses is the suitability of individual respondents, in terms of knowledge about the issues under investigation. For the preparer group, virtually all of the respondents were senior financial personnel likely to be knowledgeable about the lease-accounting issue. All of the investment analysts were either active professionally qualified (IIMR members) or active senior fund management personnel, so are likely to be representative of expert investment professional users. There were, however, significant differences between the groups’ declared familiarity with the lease-accounting proposals, with 65% of the preparer group “moderately” or “very” familiar with the new proposals compared with only 34% of the user group (difference significant at the 1% level).

¹¹ A questionnaire investigating “leasing and corporate financing decisions” was sent out over a similar time period to the remaining two-thirds of the UKQI (U.K. quoted industrials) population. Respondents to this survey were invited to request the “lease-accounting reform” questionnaire and 13 requested and completed the questionnaire.

¹² Including 136 negative responses from the investment analysts, the overall response rate was 38%. Interestingly, the major reasons for negative response were insufficient knowledge of lease accounting (47%) and lack of time/too busy (40%).

¹³ These tests suffer from a number of well-known limitations; see Wallace and Mellor (1988) and Wallace and Cooke (1990) for discussions.

¹⁴ Responses were classified into three approximately equal-sized groups (early, middle, and late), according to the date that their completed questionnaire was received.

4.2. Accounting standards generally

Respondents' views on lease-accounting reform may be conditioned by their opinion of accounting standards in general (Taylor & Turley, 1985). Opinions on accounting standards are, therefore, reported in Table 1, panel A. The general need for accounting standards is almost universally supported, however preparers are, not surprisingly, more aware of the compliance burden.¹⁵ It appears, therefore, that the responses to questions concerning lease accounting are unlikely to be colored by a disagreement with accounting standards in general. Any difference in the perceived burden imposed on companies arising from the existing standard and the new proposals could, however, be an issue. Unsurprisingly, there were no significant differences in response associated with familiarity, operating-lease usage, or company size.

4.3. Deficiencies in current lease-accounting standards

In the development of high quality accounting standards, new proposals should, in addition to possessing certain other attributes, address a current deficiency (Imhoff, 1998). Respondents' agreement with ten suggested deficiencies of SSAP 21, taken mainly from the G4+1 special report, are shown in Table 1, panel B, in descending order of agreement by the user group. Most of the deficiencies also apply to IAS 17, however the questions in rows 1 and 3 relate specifically to the existence of a bright line in relation to lease classification.

Both groups agreed that the current standard was open to manipulation, lacked uniformity, did not portray the substance of transactions, was incomplete, inconsistent and lacked clarity (rows 1–5; 8, 9). It is of note that while users did believe that their decision making was impaired by these deficiencies, preparers did not (rows 6, 7, 10). The user group also felt significantly more strongly than the preparer group about the difficulty of estimating the balance-sheet impact of operating leases (row 2), and was more concerned about the subjectivity of lease classification (row 10).

The primary deficiency of SSAP 21 identified by both groups (that lease transactions could be deliberately structured for classification as operating leases — row 1) was recognized more keenly by “familiar” preparers (“familiar” group mean=4.26; “less familiar” group mean=3.82). There were no other significant differences.

4.4. Lease-accounting proposals: general principles

The approach in the G4+1 discussion paper is grounded in the definitions of assets and liabilities and seeks to improve information for users' decision making. The general

¹⁵ Opinion varies regarding whether it is better to use parametric or non-parametric statistical tests on responses from Likert-type scales. Strictly, a Likert scale is not an interval scale and so the more conservative non-parametric tests should be used. In practice, however, the results of both forms of tests are very similar and so the more familiar and tractable parametric versions are commonly used. Studies involving Likert scales that use parametric tests include Bebbington, Gray, Thomson, and Walters (1994), Yap (1997), and Hermanson (2000), while Deegan and Rankin (1999) use non-parametric tests exclusively.

Table 1
Views on accounting standards generally and suggested deficiencies in extant leasing standards

Panel A: Accounting standards generally

Question asked (abbreviated) ^{1a}	No. of responses ⁴		Mean ^{2,3} (std. dev.)		Difference ⁵
	Users	Preparers	Users	Preparers	
<i>Accounting standards are</i>					
1. An undesirable and unnecessary intrusion into company activities	32	80	1.34*** (0.83)	1.51*** (0.80)	ns
2. Desirable and impose no significant burden on companies	35	82	3.34 (1.24)	2.67*** (1.19)	0.01
3. Desirable but do impose a significant burden on companies	37	90	3.27 (1.15)	3.73*** (1.10)	0.05

Panel B: Suggested deficiencies in the current lease-accounting standards

Question asked (abbreviated) ^{1b}	No. of responses ⁴		Mean ^{2,3} (std. dev.)		Preparer rank ^{1b}	Difference
	Users	Preparers	Users	Preparers		
<i>To what extent do you agree with the following suggested deficiencies in SSAP 21?</i>						
1. Permits leasing transactions to be deliberately structured for classification as operating leases	38	86	4.16*** (0.72)	4.12*** (0.85)	1	ns
2. Requires estimation of balance-sheet impact of operating-leases based on limited information	39	85	4.13*** (0.70)	3.42*** (0.85)	5	0.01
3. Substantially similar leasing transactions can be accounted for in different ways	39	86	4.08*** (0.62)	3.91*** (0.82)	2	ns
4. No balance-sheet recognition of material operating-lease assets and liabilities	40	87	3.98*** (0.89)	3.81*** (1.04)	3	ns
5. No single accounting method applicable to all leases	40	87	3.90*** (1.01)	3.61*** (0.98)	4	ns
6. Impairs users' comparison between companies	40	87	3.73*** (1.01)	3.21 (1.11)	8	0.05
7. Impairs users' evaluation of lessees' financial commitments	39	87	3.72*** (0.97)	3.07 (1.05)	9	0.01
8. Lease classification requires difficult and subjective judgments	40	87	3.68*** (0.86)	3.28*** (0.98)	6	0.05
9. Inconsistency with substance over form principle FRS 5	32	82	3.53*** (0.80)	3.26** (1.08)	7	ns
10. Impairs users' estimation of risks involved in providing finance to lessee companies	37	84	3.38** (0.92)	2.77** (1.00)	10	0.01

Notes

1. a. Table is presented using the logical question order appearing in the questionnaire.

b. Table is ranked by mean response of users; preparer rank = rank of preparers' mean response.

2. Response categories are: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

3. Significance of *t*-test of whether mean response is significantly different from 3 = neutral; *** and ** = significant at 1% and 5% levels, respectively (2-tail test).

4. Number of responses to each individual question excluding "Don't know" responses.

5. *P*-value from a Wilcoxon–Mann–Whitney test for significant difference between respondent group medians; significance levels of 5% and 1% are reported (2-tail test); ns = not significant.

Table 2
Views on the general principles in the G4+1 lease-accounting proposals

Question asked (abbreviated) ^{1a}	No. of responses ⁴		Mean ^{2,3} (std. dev.)		Difference ⁵
	Users	Preparers	Users	Preparers	
<i>To what extent do you agree with the following principles in the proposed approach to lease accounting?</i>					
1. One accounting method should be applicable to all leasing transactions	39	89	3.72*** (1.07)	3.32*** (1.25)	ns
2. A lease-accounting method should apply to all types of tangible assets, including land and buildings	39	88	3.74*** (1.02)	3.07 (1.27)	0.01
3. A lease-accounting method should be equally applicable to leases of intangible and tangible assets	39	86	3.33** (0.96)	3.01 (1.13)	ns
4. All <i>material</i> leases should give rise to an asset and liability on the lessee's balance sheet	40	89	3.95*** (0.81)	3.27** (1.23)	0.01
5. A lease-accounting method should not contain a threshold to exclude short leases; this should be addressed by the concept of materiality	36	88	3.67*** (0.86)	2.96 (1.15)	0.01

Notes: see Table 1.

principles focus on recognizing the substance of leasing transactions and the application of uniform methods across all leases. Respondents were asked the extent of their agreement with these general normative principles and their views are summarized in Table 2. Row 1 deals with the general principle that there should be one accounting method for all leasing transactions. This is amplified to confirm that the method should apply to land and buildings and to intangible assets (rows 2–3). The final two rows focus on whether a de minimis threshold should apply to leases or whether the general concept of materiality is sufficient.

The user group was in favor of all of these general principles. However, the preparer group was far less positive, on average, and exhibited high variability. There was relatively moderate agreement, on average, with just two of the principles (rows 1 and 4). Thus, while recognizing the deficiencies of SSAP 21, preparers were not particularly supportive of the general principles of reform. This could stem from opposition to the G4+1 proposals per se, or aversion to any form of change, a manifestation of the status quo bias (Samuelson & Zeckhauser, 1988). Moreover, opposition to the G4+1 proposals could arise either from opposition to the conceptual basis of the principles or from expected adverse economic consequences for their companies should the new proposals form the basis of a new lease-accounting standard.

There was only one significant difference associated with background characteristics. Preparers in companies with low lease usage favored the application of a single method to all tangible assets, including land and buildings (mean=3.44), whereas those in companies with high operating-lease usage opposed this (mean=2.68). Perhaps preparers with few property leases are more concerned with administrative simplicity than balance-sheet impact (and vice versa for those with high exposure to property leases).

4.5. *Lease-accounting proposals: specific issues*

While high quality accounting standards should preferably be based on concepts rather than arbitrary rules, supplementary rules are usually necessary to limit alternatives and ensure consistency of application. The G4+1 discussion paper considers and recommends ways of dealing with some of the complexities of lease contracts, specifically the treatment of renewal options, contingent rentals, and rentals that vary in line with prices.

4.5.1. *Renewal options*

There are two main differences between SSAP 21 and the G4+1 proposals. Under SSAP 21, a renewal option (if reasonably likely to be exercised) is included in determining the lease term for classifying agreements as finance or operating leases. For a finance lease in which the exercise of a renewal option is reasonably certain, the present value of lease rentals payable in the initial period and the renewal period would generally appear on the balance sheet. While the G4+1 proposals would require the present value of all material lease agreements to be recorded on the balance sheet, they suggest that renewal options should *not* be anticipated.¹⁶ Thus, only the present value of rentals payable in the initial period would appear on the balance sheet and hence shorter guaranteed terms could actually reduce balance-sheet obligations for leases that are currently classified as finance leases.

Second, SSAP 21 makes no distinction between the renewal option and the value of the right to use the asset, whereas the G4+1 document proposes that the two should be recorded separately on the balance sheet, to highlight the flexibility of different lease-agreement arrangements. It is proposed that option values could be ascertained through direct comparison with similar lease agreements without options.

Table 3, panel A provides a summary of responses concerning renewal options. Both groups are neutral regarding the benchmark SSAP 21 treatment (row 1). Preparers' views regarding the new proposals are both stronger and significantly different from those of users, with preparers agreeing that renewal options should not be anticipated but disagreeing that options should be recorded separately. The latter view may arise from the perceived difficulties of valuing the option. Preparers do not think that option values can be established by comparison with similar agreements; users are neutral. However, both groups envisage significant compliance costs (especially preparers) and the negotiation of shorter initial lease terms. The technical complexity of the treatment of renewal options may be contributing to the general neutrality (uncertainty) of the user group.

There were two significant differences relating to background characteristics. First, although both the high and low operating-lease usage sub-groups agreed that the exercise of renewal options should not be anticipated, high users were in stronger agreement (mean=3.91 (high); 3.49 (low); row 2). Second, while preparers were neutral, on average, to the recording of renewal option assets and liabilities at the start of the lease, small

¹⁶ The use of "break clauses" is more common in the U.K. commercial property market than "renewal options" but the effect is very similar. These break clauses can be used to give the lessee an option to exit the lease contract at various stages during the contract (e.g., every five years). It is, in effect, an option to "not renew."

Table 3
Views on the specific G4+1 proposals
Question asked (abbreviated)^a

Question asked (abbreviated) ^{1a}	No. of responses ⁴		Mean ^{2,3} (std. dev.)		Difference
	Users	Preparers	Users	Preparers	
<i>Panel A: Renewal options</i>					
To what extent do you agree with the following?					
1. Estimates of probable amounts paid under options should be recorded as an asset and liability at beginning of lease	37	81	3.14*** (0.86)	2.83 (1.06)	ns
2. Exercise of renewal options should not be anticipated	36	83	3.31 (1.04)	3.71*** (0.86)	0.05
3. Renewal-options of significant value should be recorded as a separate asset and liability	35	79	3.29*** (0.83)	2.57*** (1.01)	0.01
4. Renewal option value can be reliably ascertained by comparison with similar agreements without options	35	79	3.14 (0.81)	2.66*** (1.00)	0.01
5. Significant compliance costs would be involved in obtaining option valuations	37	81	3.38** (1.09)	4.03*** (0.84)	0.01
6. Negotiation of short terms of limited-asset usage that incorporate renewal options could ensure future requirements and minimize balance-sheet obligations	29	74	3.52*** (0.78)	3.46*** (0.76)	ns
<i>Panel B: Contingent rentals</i>					
To what extent do you agree with the following?					
1. No balance-sheet recognition of contingent lease rentals; they should be expensed when revenue/profits arise	39	86	3.08 (1.21)	3.69*** (1.00)	0.01
2. Estimates of probable amounts paid should be recorded on the balance sheet	39	86	3.08 (1.01)	2.48*** (1.00)	0.01
3. If minimum lease rentals are unrepresentative, the fair value of property rights conveyed should be recognized on the balance sheet	36	86	3.28 (1.00)	2.94 (0.94)	ns
4. Fair value of property rights conveyed can be ascertained by comparison with similar lease agreements excluding the contingency	35	79	2.97 (0.86)	2.77** (1.01)	ns
5. It is incorrect to compare with similar agreements excluding contingency; contingent element restricts asset use making the lease less valuable	33	76	3.58*** (0.83)	3.29*** (0.88)	ns
<i>Panel C: Rentals that vary in line with prices</i>					
To what extent do you agree with the following?					
1. Assets and liabilities should be recognized on basis of rentals applicable at beginning of lease term	39	85	3.08 (1.20)	3.71*** (1.08)	0.01
2. Assets and liabilities should be recognized on basis of estimates of rentals that will actually be paid	38	85	3.00 (1.07)	2.52*** (1.09)	0.05
3. Estimates of liabilities arising through rising prices cannot be measured reliably	38	86	3.13 (1.17)	3.81*** (1.08)	ns

Notes: see Table 1.

company preparers were against the suggestion (mean=2.54 (small); mean=3.05 (large); row 1).

4.5.2. *Contingent rentals*

Under SSAP 21, lease rentals contingent on asset usage or lessee revenues/profits are not included in the minimum lease payments used for lease classification, nor are they included in the capitalized value of finance leases recorded in the balance sheet. Similarly, under the G4+1 proposals, contingent rentals based on asset usage would not generally be anticipated but would be charged as an expense when the contingency arises. An exception to this general rule would be when the minimum lease payments are unrepresentative of the value of property rights conveyed, in which case a greater amount reflecting the value of such rights would be recognized. It is expected that this exception would be the norm in the case of contingent rentals based on lessee revenues or profits (para. 4.67). The proposals suggest that the value of property rights conveyed by a lease agreement with contingent rentals might be determined by comparison with lease payments for a similar agreement without contingent rentals. Respondents' views are shown in Table 3, panel B.

Only preparers agreed with the G4+1 proposal that contingent rentals generally should not be recognized on the balance sheet (row 1), and disagreed with the opposing view that estimated contingent rentals should be recorded on the balance sheet (row 2). Users were neutral to both options, on average, although there was wide dispersion in views. Both groups were neutral to the "unrepresentativeness" exception to the non-recognition rule (row 3). This may reflect the difficulty associated with estimation of fair value, as preparers in particular did not believe that the G4+1 method of comparison with non-contingent agreements is valid (rows 4 and 5). These results suggest that the difficulties associated with estimating the value of future contingent rentals contribute to the view that contingent rentals should not be recognized on the balance sheet. There were no significant differences relating to background characteristics.

4.5.3. *Rentals that vary in line with prices (e.g., upwards-only rent reviews on leased land and buildings)*

70% of property (real estate) leases in the U.K. granted in 2002–03 contain a five-yearly review (BPF IPD, 2003). Under SSAP 21, any associated variation in lease rentals is not anticipated at the beginning of the lease term, but treated as an increase/decrease in liability in the period in which the price change occurs. The G4+1 consensus is that the likely future price changes should be estimated at the start of the lease contract and incorporated in the calculation of the present value of minimum lease payments, to ensure that the difference in values for lease agreements with and without rent reviews is not misleading. However, the ASB dissented from this view on the grounds that estimates of future price increases would be unreliable. Respondents' views are shown in Table 3, panel C.

Users' views were widely dispersed though, on average, neutral. Preparers agreed with the SSAP 21 treatment (row 1) and disagreed with the alternative G4+1 proposal (row 2). The perceived unreliability of estimating future price rises seems to be a major reason for this view (row 3).

In relation to background characteristics, familiarity had a significant impact on views, with those who best appreciate the issue (i.e. respondents “familiar” with lease accounting) having stronger views. In particular, “familiar” users disagreed with recognition based only on rentals at the beginning of the lease whereas “less familiar” users agreed (“familiar” group mean=2.50; “less familiar” group mean=3.40; row 1). Thus, the views of “familiar” users were diametrically opposed to the views of all preparers (preparer mean=3.71). In addition, “familiar” preparers strongly disagreed with recognizing rental estimates (“familiar” group mean=2.36; “less familiar” group mean=2.83; row 2). This differentiates the views of this preparer sub-group even more from the views of all users (user mean=3.00).

4.6. *Economic consequences*

Potential economic consequences were identified from the G4+1 discussion paper (ASB, 1999), from published responses to this (Finance and Leasing Association, 1999), and from prior research (Beattie et al., 1998; Taylor & Turley, 1985). Respondents’ views were elicited using two multi-part questions, the first covering all leased assets and the second focusing specifically on land and buildings (to deal with some consequences that are specific to land and buildings).

4.6.1. *Consequences of adopting the lease-accounting proposals: all assets*

Respondent’s views are shown in Table 4, panel A, in descending order of user group agreement.

Not surprisingly, both respondent groups fully recognized that many operating leases would give rise to assets and liabilities on the balance sheet (row 1) and that this would lead to an increase in reported measures of gearing (row 2), consistent with prior empirical research (Beattie et al., 1998).¹⁷ Both groups also agreed that companies may need to renegotiate borrowing covenants although preparers’ level of agreement was significantly stronger than that of users (row 6). Technical violation of accounting-based debt covenants is costly. Beneish and Press (1993) estimate that the average costs range between 1.2% and 2% of equity market value, or between 4.4% and 7.3% of the outstanding balances of the violated debt agreements. There were also similar levels of agreement by both groups that credit rating would fall for some companies (row 8).

Certain consequences impact primarily on lessees/lessors. Both groups agreed that lease terms would shorten to minimize lessees’ balance-sheet obligations (row 9). This suggests a transfer of risk to lessors from lessees, so would be of some benefit to lessee companies. However only preparers thought that lease finance would be less attractive (row 11), although they were neutral about whether this would affect U.K. investment and leasing volumes (row 16), and disagreed that new assets would be purchased (or constructed) rather than leased (row 14). By contrast, users disagreed that investment and leasing volumes would be affected and were neutral about the impact on purchase decisions. This

¹⁷ These consequences have likely indirect economic consequences because of the impact on matters such as breach-of debt covenants, which affect cash flows.

Table 4
Views on the consequences of adopting the G4+1 lease-accounting proposals

Question asked (abbreviated) ^{1a}	No. of responses ⁴		Mean ^{2,3} (std. dev.)		Preparer rank ^{1b}	Difference ⁵
	Users	Preparers	Users	Preparers		
<i>Panel A: All assets</i>						
To what extent do you agree that the following are direct or indirect consequences of recording all material leases on the lessee's balance sheet?						
1. Many operating leases would give rise to assets and liabilities on the balance sheet	38	88	4.16*** (0.55)	4.36*** (0.59)	1	ns
2. Reported measures of gearing would increase	38	87	4.13*** (0.66)	4.18*** (0.83)	2	ns
3. Users' evaluation of long term finance commitment of lessees would improve	38	86	3.89*** (0.69)	3.38*** (1.00)	7	0.01
4. Users' ability to compare companies would improve	38	85	3.76*** (0.79)	3.27** (1.02)	9	0.05
5. Users would increase their estimates of risks involved in providing finance to lessees	39	83	3.51*** (0.76)	3.01 (0.93)	11	0.01
6. Lessee companies may need to renegotiate their borrowing covenants	37	82	3.43*** (0.77)	3.96*** (0.81)	3	0.01
7. Financial statements would reflect the financial flexibility provided by different leasing arrangements	37	85	3.41** (0.98)	2.77** (0.96)	15	0.01
8. Some lessees would experience a reduction in credit rating	35	81	3.40** (1.01)	3.25*** (0.83)	10	ns
9. Lease terms would become shorter to minimize obligations	36	83	3.33** (0.79)	3.41*** (0.95)	6	ns
10. Significant additional administrative burden	39	86	3.26 (1.14)	3.64*** (0.99)	5	ns
11. Significant additional compliance costs	39	87	3.21 (1.08)	3.70*** (0.95)	4	0.05
12. Lease finance would become less attractive	38	87	3.21 (1.04)	3.37*** (0.90)	8	ns
13. Users' assessments of debt-paying ability of lessees would not be affected	39	84	3.10 (0.97)	3.01 (0.84)	12	ns
14. New assets would be purchased/constructed rather than leased	35	83	2.91 (0.98)	2.81** (0.77)	14	ns
15. Shareholders would reduce their estimates of lessees' ability to pay future dividends	35	81	2.80 (0.76)	2.62*** (0.75)	16	ns
16. Significant short-term reduction in UK investment and leasing volumes, to reduce perceived high gearing	35	81	2.63** (1.06)	2.85 (1.03)	13	ns
<i>Panel B: Land and buildings</i>						
To what extent do you agree that the following suggested consequences of the new approach apply to the leasing of land and buildings?						
1. Recording leased asset brings it within scope of impairment, with advantage of writing off any loss when it occurs not when decision taken to vacate property	34	77	3.50*** (0.71)	3.22*** (0.96)	4	ns
2. Advantage of showing increase in value arising from lessee sub-leasing at a higher rent	37	78	3.46*** (0.69)	3.24*** (0.78)	3	ns
3. Companies would find it difficult and expensive to estimate the present value of future property-rent increases	38	84	3.03 (1.05)	3.94*** (0.95)	1	0.01
4. Combined P&L expense (depreciation and interest) in the early years of a new property lease would substantially exceed market rent	31	67	3.00 (0.86)	3.55*** (0.88)	2	0.01
5. Property rental yields may rise to reflect higher risk arising from loss of security of long term tenants	37	76	2.84 (0.99)	3.07 (0.97)	6	ns
6. Companies would be reluctant to enter long term property leases making it difficult to fund new property development	37	81	2.81 (1.02)	3.10 (1.08)	5	ns
7. Companies would purchase property rather than lease	35	74	2.63*** (0.77)	2.77** (0.85)	7	ns

Notes: see Table 1.

might suggest that, although less attractive, lease finance would still compare favorably with alternative sources of finance. Alternatively, it might suggest that companies don't always have the choice between purchase/construction and leasing. The use of specific assets may only be available in one form or the other. General comments made by the respondents provide some indication of this being the case (for example, "the alternative to leasing isn't always available" and "the properties we operate from are only available on lease").

Users agreed significantly more strongly than preparers that users' assessments of companies would be improved (rows 3 and 4) if the proposals were adopted. This is somewhat inconsistent with preparers' rejection that the current accounting standard impairs users' assessments (Table 1). Users agreed that they would increase risk estimates, though they were neutral that the assessment of either debt-paying ability or dividend-paying ability would be affected (rows 5, 13 and 15). Preparers were neutral to the first two consequences, but did think that dividend-paying ability would be adversely affected.

Users were neutral regarding the effect on administrative burdens and compliance costs, whereas preparers agreed that these would increase significantly (rows 10 and 11). Finally, users agreed that the proposals would reflect the financial flexibility of different leasing arrangements, while preparers disagreed (row 7).

This set of responses highlights the fact that it is the economic consequences relating to company risk (and the perception of it) that are of prime importance in the debate on lease-accounting reform. The increase in measured levels of gearing would affect debt covenants, lease terms, credit ratings, financing choices, and users' assessment of company risk.

4.6.2. Consequences of adopting the lease-accounting proposals: land and buildings

The proposed new approach to lease accounting would have a major impact on property leases (i.e., land and buildings). Under SSAP 21, such leases are generally treated as off-balance-sheet operating leases, since the landlord lessor retains a significant residual interest in the property. Under the G4+1 proposals, the present value of future rentals and an estimate of future increases would be recorded on the lessee's balance sheet. The views of respondents on various potential consequences of the new proposals being applied to the leasing of land and buildings are shown in Table 4, panel B, in descending order of user-group agreement. The question in row 7 is reiterated in the specific context of land and buildings; the other potential consequences are peculiar to land and buildings.

The new proposals suggest that balance-sheet recognition of the rights and obligations to occupy leased property would enable any loss on leased property to be written-off when it occurs rather than on vacation of the property, and any increase in value arising from sub-leasing at a higher rent to be shown. Both groups of respondents appear to support these arguments (rows 1 and 2). Consistent with the general trends observed in Table 4, panel A, the difficulty and costs involved in estimating the present value of future property-rent increases (row 3) were not recognized by users, but were strongly identified by preparers. The G4+1 discussion paper suggests that an estimate of the fair value of a property lease subject to rent reviews might be obtained by comparison with a similar property lease that was not subject to rent reviews. However, according to the Finance and

Leasing Association (FLA) in their response to the new proposals, virtually no such leases exist in the U.K. Preparers recognized that the combined profit and loss expense of depreciation and interest would exceed market rent in the early years of the lease agreement (row 4); perhaps surprisingly, users did not appreciate this fact.

The FLA suggests that rent yields may rise to reflect an increase in lessors' risk and that it may be difficult to fund new property development without the security of long-term tenants. On average, both groups were neutral to these possible property-market consequences (rows 5 and 6); their views on rent yields are surprising and may not be shared by landlords. The purchase of property instead of leasing was considered unlikely by both groups (row 7), the views being stronger than in the case of assets generally (Table 4, panel A). Perhaps the choice to purchase specific properties is not an option, as they are already owned by institutions or property companies who wish to retain them for renting to tenants.

4.6.3. Background characteristics

The impact on respondent views of three background characteristics (familiarity with the G4+1 proposals, level of company lease usage, and company size) was examined. Seven significant differences existed. (In considering these, it should be borne in mind that, when conducting multiple individual tests, some random differences are likely to emerge as statistically significant.) First, although users were neutral overall to the view that companies would find it difficult and expensive to estimate the present value of future property-rent increases, "familiar" users disagreed ("familiar" group mean=2.54; "less familiar" group mean=3.28; panel B, row 3). The level of operating-lease usage gave rise to two differences: the view that leasing will become less attractive was driven by low lease-usage preparers (mean=3.18 (high); mean=3.57 (low); panel A, row 12), whereas disagreement with the view that companies would buy rather than lease property was driven by high lease-usage preparers (mean=2.58 (high); mean=2.97 (low); panel B, row 7). There are two possible, non-mutually exclusive, explanations for these different opinions. First, high lease-usage companies may believe that they have chosen lease finance for sound commercial reasons that will not be greatly affected by the change in accounting treatment. Nevertheless, they would still prefer to keep their leased assets, particularly land and buildings, off-balance sheet. Second, high lease-usage companies may perceive that they are in a stronger bargaining position with lessors, compared to low lease-usage companies. Thus, they may expect to be able to negotiate relatively more favorable terms (such as shorter leases with renewal options or break clauses) in response to any new accounting requirements. In other words, they expect leasing to continue to be an attractive form of finance but would like flexibility within any new accounting standard to enable them to minimize the impact on their financial statements.

The remaining four significant differences concerned company size. Large companies were more acutely aware than small companies of the need to renegotiate bond covenants (mean=4.13 (large); 3.79 (small); panel A, row 6), perhaps because large companies are likely to have greater exposure to securitized long-term debt (Bevan & Danbolt, 2002; Lasfer & Levis, 1998). On the other hand, small companies showed greater concern over the expected increase in administrative burdens (mean=3.83

Table 5
Lease-accounting alternatives and implementation

Question asked (abbreviated) ^{1b}	No. of responses ⁴		Mean ^{2,3} (std. dev.)		Preparer rank ^{1b}	Difference ⁵
	Users	Preparers	Users	Preparers		
<i>Panel A: Alternatives</i>						
To what extent do you agree with the following statements regarding lease-accounting alternatives?						
1. Note disclosure to be accompanied by analysis of lease commitments by asset type	38	87	3.76*** (0.85)	3.75*** (0.93)	1	ns
2. Capitalized value of all leases recorded on balance sheet <i>with</i> other material aspects disclosed in a note	39	86	3.62*** (0.91)	2.95 (1.23)	3	0.01
3. Introduction of 75% threshold in finance-lease classification	36	80	2.92 (0.94)	2.73** (0.97)	4	ns
4. Current distinction between finance and operating leases should be maintained	39	86	2.46*** (1.14)	3.05 (1.23)	2	0.05
5. Capitalized value of <i>all</i> leases recorded on balance sheet <i>without</i> note disclosure of other material aspects	39	86	2.46*** (0.82)	2.27*** (0.95)	5	ns
<i>Panel B: Implementation</i>						
To what extent do you agree with the following statements regarding implementation of new proposals for lease accounting?						
1. Immediate implementation of proposals to new and existing leases	39	88	3.36** (1.01)	2.61*** (1.25)	1	0.01
2. Transition period with operating-lease capitalization required for new leases and disclosure of capitalized value required for existing leases	39	88	2.85 (0.99)	2.52*** (1.14)	4	ns
3. Transition period with the capitalized value of (new and existing) leases disclosed and only incorporated in balance sheet at end of transition period	39	87	2.72 (1.02)	2.56*** (1.12)	2	ns
4. Transition period with operating-lease capitalization required for new leases only	39	88	2.54*** (0.97)	2.55*** (1.19)	3	ns

Notes: see Table 1.

(small); 3.42 (large); panel A, row 10) and compliance costs (mean=3.86 (small); 3.51 (large); Table 4, panel A, row 11). Presumably, small companies have a smaller administrative team over which to spread such matters.

Further, large companies agreed more strongly that lease terms would shorten (mean=3.62 (large); mean=3.15 (small); panel A, row 9), presumably reflecting the relative bargaining power that large firms have in contract negotiations. Finally, large companies tended to agree that “companies would be reluctant to enter long property leases making it difficult to fund new property development” in contrast to small

companies who disagreed (mean=3.37 (large); mean=2.77 (small); panel B, row 8). This may reflect large company views on the first, rather than the second, part of the statement. There is anecdotal evidence that companies may wish to negotiate shorter lease contracts for commercial rather than accounting reasons. Large companies may find this easier to accomplish than small companies in view of their stronger negotiating position.

4.7. Lease-accounting alternatives

The UK Finance and Leasing Association suggested an “improved” version of SSAP 21 in which the arbitrary 90% classification test for finance leases of SSAP 21 would be reduced to 75%. They argue that this would bring the vast majority of U.K. operating leases onto the balance sheet while retaining the existing principles that are widely understood. The SSAP 21 and G4+1 treatments are also included to serve as benchmarks. We also asked about increased footnote disclosure and full capitalization without any additional disclosure. Responses are shown in Table 5, panel A, in descending order of user agreement.

Users agreed with the G4+1 treatment, disagreed with the SSAP 21 treatment, and were neutral to changing the classification threshold (rows 2–4). Both groups agreed that lease commitments should be analyzed by asset type, as already practiced in the U.K., but not in all countries (row 1). On the other hand, both groups disagreed with the suggestion that capitalization made additional disclosure unnecessary (row 5). Although users were neutral overall to the 75% threshold alternative, “familiar” users disagreed (“familiar” group mean=2.50; “less familiar” group mean=3.13; panel A, row 2).

4.8. Implementation of the lease-accounting proposals

Respondents were asked their opinion on four alternatives for implementing the new proposals — immediate implementation for all leases and three different transition arrangements. Responses are summarized in Table 5, panel B.

Users favored immediate implementation to new and existing leases (row 1), perhaps to minimize the disruption and uncertainty associated with multiple change points and also to benefit immediately from the improved information. They disagreed with the suggestion of a transition period in which operating-lease capitalization would be required for new leases only (row 4) and were neutral about disclosure of capitalized values. Preparers disagreed with all four alternatives, although this may simply reflect their disagreement with the general principles of the proposals. Preparers’ views varied highly, however. There were no significant differences relating to background characteristics.

5. Summary and conclusions

This paper reports the findings from a questionnaire survey of U.K. users and preparers regarding lease-accounting reform. In common with all research methods, the survey method used in the present study suffers from a number of limitations that must be borne in mind when evaluating the results. There are three principal potential limitations: (i) non-

response bias, which can mean that the findings are not generalizable to the population of interest; (ii) uninformed respondent bias, which means that the respondent does not possess the appropriate knowledge or experience to answer the questions posed; and (iii) the risk that respondents do not answer with complete honesty. A further limitation of the study is that, as respondents were confined to U.K. subjects, the results cannot be generalized beyond the U.K., especially where there are significant institutional differences. One might speculate, for example, that the views of users in less active capital markets to that in the U.K. (and U.S.) would differ less from those of preparers. The extent of variation in the views of users and preparers across countries is also of interest.¹⁸ Further research conducted in other jurisdictions could usefully be undertaken to investigate these issues.

This survey has shown that the current U.K. lease-accounting standard, which is representative of many extant lease standards worldwide in key respects, is recognized as deficient in a number of respects by both users and preparers, thereby failing to meet the criteria for a high quality accounting standard. In particular, they agreed that it allows transactions to be deliberately structured for classification as off-balance-sheet operating leases, thereby enabling similar transactions to be accounted for in different ways. However, preparers did not believe that this impaired various user decisions.

Expert users were strongly in favor of the general principles in the G4+1 proposals. However, preparers were far less positive, showing only moderate support for just two of the principles (that all material leases should be recognized on the lessee's balance sheet and that one accounting method should apply to all lease transactions). The G4+1 discussion paper makes specific proposals for the treatment of renewal options, contingent rentals, and rentals that vary in line with prices. While the views of users were generally neutral, preparers were against the proposals, instead favoring the treatment of these issues in the current standard. The main arguments against the detailed proposals seemed to be based on cost–benefit considerations and concerns about their operationality. Given that the preparers (companies) initially bear the costs and users (analysts and others) are more likely to reap the direct benefits from improved financial information, the differing responses from preparers and users are understandable. The attitude of preparers is entirely consistent with the arguments put forward by Parfet (2000) who suggests that accounting standards “are overhead, not something a customer consumes and will pay for” (p. 483). Consequently, business responds toward new accounting rules with a “healthy negative bias,” which is “one of the healthy checks and balances in the great standard-setting system we have” (p. 483; p. 484). However, preparers' expressed views may ignore any potential, indirect, long-term benefits that companies may enjoy from improved user/market confidence as a result of the improved information (e.g., reduced costs of finance). Accounting standard setters act as arbiter between those who might benefit from the improved information and those who will incur the costs of providing the information.

Another challenge faced by accounting standard setters is to identify the economic consequences that may result from a change in accounting standards, estimate their

¹⁸ We are grateful to an anonymous reviewer for suggesting these points to us.

magnitude, and then take them into account. The current paper contributes by asking key interested parties what they believe will be the consequences if the G4+1 proposals are adopted. There was clear acceptance by both users and preparers that additional assets and liabilities would be brought on to the balance sheet under the new proposals and that this would impact on reported gearing. This was considered likely to lead to: renegotiation of borrowing covenants; a reduction in credit ratings for some companies; improved users' evaluation of long-term financial commitments; and improved company comparisons. Additional compliance costs and administrative burdens relating to lease accounting were anticipated by preparers (particularly from smaller companies), but not by users.

Both groups believed that lease terms would become shorter to minimize balance-sheet obligations and some preparers (from low operating-lease usage companies), but not users, also believed that the proposals would make lease finance less attractive. However, neither group believed that the proposals would adversely affect U.K. investment and leasing volumes in the short term, nor that they would substantially change the U.K. property market. In particular, the purchase of property rather than leasing was considered unlikely, probably because the purchase alternative is not always available. Overall, respondents anticipated significant economic consequences if the proposals are incorporated in a new lease-accounting standard.

Alternatives to the new proposals were explored but none appeared to be favored by preparers. They were neutral to the current SSAP 21 treatment and to disclosure (rather than recognition) approaches, while opposing a 75% threshold for finance leases, and the suggestion of capitalization in the balance sheet without footnote disclosure of other material aspects. By contrast, users clearly favored the G4+1 proposals. Immediate implementation of the new proposals to new and existing leases was favored by the user group, implying that a "clean break" would be preferred over a transition period. Preparers disagreed with all four of the alternative suggestions for implementation, probably reflecting general disagreement with the new proposals *per se*.

The findings of the present study demonstrate very clearly that the views of expert users and preparers differ significantly. This suggests that the interests of these two groups' conflict and standard setters must address this. These group differences also show that concerns about the general under-representation of users' views on accounting standards are well-founded. By examining the views of representatives from both key constituencies (users and preparers), investigating the impact of background characteristics on those views, and covering a range of key reform issues (e.g. general principles, economic consequences, implementation), the *ex ante* evidence presented here provides a more balanced and comprehensive set of views in support of the standard-setting process than has hitherto been available.

The findings also provide further evidence that lease-accounting standards currently in force worldwide are not perceived as being of high quality. It is shown that the distinction between operating and finance leases is not generally believed to be a useful principle on which to base a standard. The distinction is not clear-cut and hence the detailed accounting rules that emerge are inherently unsatisfactory. The principle upon which there is widespread agreement is that all material rights and obligations arising from lease contracts should be recognized on the balance sheet. It is the detailed implementation

guidance associated with this principle that is the subject of most debates. Further research to explore the detailed nature of lease contracts across different jurisdictions and investigate the economic consequences of adopting different detailed implementation guidance would further assist in the process of lease-accounting reform. Ultimately, however, it will be the responsibility of the standard setters to balance conceptual principles and economic consequences and also to resolve the conflicts of interest that exist between the key interested parties (Cyert & Ijiri, 1974).

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Book Review Section

The book review section is interested in works published in any language, as long as they are comparative or international in character. The author or publisher of such works should furnish the book review editor with two (2) copies of the work, including information about its price and the address where readers may write for copies. Reviews will be assigned by the book review editor. No unsolicited reviews will be accepted. Suggestions of works that might be reviewed are welcomed.

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Book reviews

Robert Wearing, Cases in corporate governance, SAGE Publication, London, 2005, ISBN 1-4129-0877-9, xii+162 pp., US\$ 31.95 (pbk)

Which of the competing approaches to understanding the governance of corporations provides the most useful tool for analyzing recent corporate failures? Is it more sensible to understand corporate governance from the standpoint of the principal–agency problem, with its attendant and implicit preference for maximizing shareholder value and implicit devaluing of the claims of workers, the community, and other non-owners also affected by corporate decision-making? Or, is it more sensible to explain governance as a problem of optimizing value among competing stakeholders, recognizing that a theory of governance inevitably must address the interests of various groups directly affected by corporate decision-making? Or, are the interests of shareholders and other stakeholders not necessarily inconsistent — that, as Jensen (2001) has argued most recently, attending to the interests of stakeholders is necessary to maximizing the value of the firm to the shareholders? These are questions Robert Wearing raises in his new book *Cases in Corporate Governance*. Each of these competing theories is well established as an explanation for corporate and managerial behavior, and each holds pitfalls close to the theoretical edges. Wearing provides a sophisticated, succinct, and balanced presentation of dominant theories as well as a series of cases through which to examine theory.

One might quibble with Wearing's reliance on traditional wisdom of corporate governance. For example, Wearing explains the phenomenon of shareholder passivity as the necessary trade-off for a limitation of liability for the debts of the corporation. This shibboleth holds no longer in most modern industrial societies, where myriad new forms of business organization — cousins of continental European and Latin American business forms — have eroded it. The limited liability company and the limited liability partnership, for example, invoke no necessary relationship between limitation of liability and control, permitting full control by the owners and their limitation of liability for the debts of the company. The more likely explanation of the shareholders' limitation of liability is the need of the capital markets for financial products that trade with uniform and bounded risk, as well as the sheer impracticability of suing and collecting from the millions of shareholders in the modern corporation. And the critical trade-off of limited liability is not control but public disclosure, so that third parties are protected in their expectations. The significance of this seemingly picky point is that it underscores the increasingly paramount role of transparency and disclosure in corporate governance, a point to be explored below.

Similarly, the traditional wisdom of stakeholder theory that corporate citizenship is a good surrogate for good corporate governance is unchallenged by Wearing. Yet, arguably,

it is exploded by the cases Wearing proceeds to discuss. Enron stands out in this regard: Enron was a model corporate citizen, an asset to the Houston community, and it was regarded as a great place to work. Jobs at Enron were coveted and highly competitive. It had many trusting [obviously too trusting] business relationships with suppliers, customers, bankers and other sources of capital. These qualities portended nothing about the fundamental honesty and adequate governance of the corporation, where lies and cover-ups of lies abounded right under the nose of a highly qualified board of directors and with the apparent blessing of some of the most prestigious law firms and auditing firms in the United States. Enron was a model corporate citizen but its governance stank because it thrived on lies and corruption. This reviewer's mind cries out for Wearing to connect these dots.

In fairness, however, Wearing does not advance any extant theory nor does he choose among theories. Rather, he invites the reader to consider the operation of these theories in nine recent cases of corporate dysfunction in major firms in Europe, North America, and Asia. Thus, he presses theory into the service of understanding and evaluating managerial behavior in specific fact situations. And of that he does a masterful job.

The cases Wearing examines include the saga of Robert Maxwell, Polly Peck, the Bank of Credit and Commerce International (BCCI), the Enron Corporation, WorldCom, Inc., Parmalat, Eurotunnel, Barings Bank, and Shell Oil. Wearing's succinct and well-written summaries of complex issues in these cases reflect good use of major contemporary sources. Sometimes, in the interest of bypassing tangential detail, he uses the passive voice excessively, for this reader. In general, however, he does an excellent job of integrating explanations of basic concepts with a factual and well-written narrative. In this way he makes an understanding of the business complexities involved in the cases accessible to a wide audience, and to a wide range of students. Those who understand these ideas already are not belabored with a quick review, and those who are being introduced to them for the first time do so in a practical, useful, and memorable context.

In the concluding chapter Wearing highlights both disparate and common causes of the corporate failures he has examined. Among other factors, he identifies the problem of the concentration of power in the hands of the chairman and chief executives, spectacular share price performance, devices to support share price, the complexity of financial statements and structures, the failures of the audit function, the insufficient oversight of boards of directors, the actions taken by the firm against analysts and journalists, the subjective relationship with banks and financial institutions, the role of whistleblowers, the prevalence of fraud, and the use of creative accounting to disguise fraud.

While Wearing highlights the use of theories in his case narratives, he does not attempt to take a position on which dominant theory of corporate governance best explains these failing companies. This reader is led to speculate that perhaps Wearing's decision to leave the answer open-ended is because none of these theories – principal-agent theory, stakeholder theory, or enlightened value maximization – adequately explains the ethical failure of the actors in the cases Wearing has selected. Something is missing. None of these failings reflected a frittering away of shareholder assets to enrich suppliers, workers, or communities. None of these failings represented a driving passion to enrich shareholders, with little regard for the interests of stakeholders other than shareholders. None of these failings represents failure to follow principles of enlightened value maximization.

Rather, the theme that stands out in the case analyses is that the central ethical failing of the managers in each was myopic greed and selfishness, tinged often with an exaggerated sense of self-importance, and a driving passion to enrich or protect oneself with no particular regard for the interests of stakeholders or shareholders at all. That this central ethical failing of managers led to fraud and to disaster for all concerned was the professional failure of all those to whom fell the responsibility to monitor management. Thus, two conditions are common to these corporate governance disasters: deceptive, deceitful, fraudulent behavior on the part of managers acting in their own interests at the expense of shareholders and other stakeholders; and the failure of monitoring systems – internal, external, and governmental – to detect, disclose, and stop the fraud.

Maxwell stole more than 43 million pounds from pension funds, and Coopers and Lybrand failed to report these abuses to pension fund trustees (who in turn failed to detect the theft). Polly Peck's management deliberately created false accounting entries, presumably undetected. At base the problems of Enron involved elaborate and fraudulent schemes to hide debt in order to lie to shareholders about the true financial condition of the firm; internal and external auditors colluded to perpetrate the fraud, while senior managers collected millions of dollars in undisclosed compensation for running the fraudulent schemes. WorldCom, BCCI, and Parmalat, too, involved complex accounting fraud by senior managers with a personal interest in the fraud, with all monitors complicit. The Eurotunnel case involved intentionally overoptimistic projections of costs and revenues in reports to all stakeholders, done to enrich and entrench management. Barings' problems are attributable to the action of a trader whose responsibility for both trading and backroom operations of a European bank in Singapore made it possible to cover up enough bad trades to sink the Bank, all for the manager in question to "make" personal bonuses for trading gains and to avoid being detected and sacked; internal audit mechanisms were almost non-existent. Shell Oil's problem in the 21st century involved fraudulent estimates of oil reserves to maintain share price at unwarranted levels to support management.

None of these frauds redounded to the benefit of shareholders as a class or of any group of stakeholders. To the extent that shareholders paid stock prices that reflected the disclosure of fraudulent information, or held stock they would have sold had information been accurate, they were injured. And the communities of stakeholders who depended on the integrity and continuity of the firms for their livelihood were injured as well. And neither group suffered at the expense of the other, as the competing theories often hint. At the end of the day, theoretical debate about whether managers owe greater duties to shareholders than to other stakeholders is muted (and mooted as well), if not made irrelevant, when managers act primarily to enrich and entrench themselves at the expense of everyone else.

And this may be the fundamental unifying theme of the cases: their relationship to corporate governance lies, in part, in the ability of a governance mechanism to check and balance the greed and temptation to self-aggrandisement of the managers. This suggests a preference for principal-agent analysis, and it is.

This reviewer thinks that the corporate governance problem is more likely to be solved if it is identified and analyzed correctly, and that requires a step beyond the traditional management theories of corporate governance. Traditional principal-agent theory despairs

at the conundrum of the incomplete contract — the inability of humans to specify and agree in advance on the behavior of the agent that the principal-agent relationship requires. As Wearing aptly observes, this problem was evident even in the 18th century in Adam Smith's writing. The common law's solution to this problem, however, long predates Berle and Means' (1932) and Jensen and Meckling's (1976) 20th century articulation of the problem. American law students have long cut their teeth on crusty old cases such as one decided by Judge Benjamin Cardozo in which he summarized the component parts of the fiduciary duty that an agent (in that case, mutual agents) owes to a principal.

[Mutual agents owe] the duty of finest loyalty. Many forms of conduct permissible in a workaday world for those acting at arm's length are forbidden to those bound by fiduciary ties. A trustee is held to something stricter than the morals of the market place. Not honesty alone, but the punctilio of an honor the most sensitive, is then the standard of behavior.¹

This concept — that the agent has an overriding duty to look out for the interests of the principal, to meet the duty of care and the duty of loyalty regardless of whether the employment contract has contemplated the present facts — completes the "incomplete contract." It dots the "i" and crosses the "t." It has been adopted in the corporate law of every common law country and has its counterpart in the civil-law traditions of the European continental systems. The solution to the problem is to regard the fiduciary duty as a legal obligation for which the agent owes recompense to the principal. Moreover, modern corporate and securities law treats the failure to disclose to the principal that which the agent has a duty to disclose as fraud compensable through the civil law and punishable by the criminal law.

It must be admitted that this analytical framework does not tell us *why* things went wrong in these cases (nor do the dominant theories described by Wearing). It does, however, provide us with the language to explain *what was wrong and why it was wrongful*. It takes us a step beyond the extant management theories that are of quite limited use in explaining either positively or normatively what went wrong. It also suggests that the solution to the corporate governance problem — at least as it appears in the book's cases — lies in the education, training, and socialization of managers and those who monitor managers' professional role, and in enforcement of fiduciary law. This may take us further toward solving the *ethical* problem than does pursuing better corporate citizenship or workplace satisfaction or tweaking other elements of governance unrelated to the transparency, honesty, and integrity of financial information.

In short, Wearing has written a superb and highly provocative book that does an excellent job of introducing students to theories of corporate governance and exposing complex fact situations in a clear and well-written manner. It would be an excellent text or text supplement in many different types of courses and is well worth the read.

¹ *Meinhard v. Salmon*, 164 N.E. 545 (N.Y. 1928).

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Hugh Coombs, David Hobbs, Ellis Jenkins (2005). *Management accounting, principles and applications*. Sage Publications, London, 2005, xii+347 pp., £26.99, ISBN 1-85396-383-6 (pbk)

This first edition of *Management Accounting, Principles and Applications* by Hugh Coombs, David Hobbs, and Ellis Jenkins is primarily intended for “students pursuing courses of study in management accountancy at undergraduate, postgraduate and professional level” (back cover). Its main objective is to show how management accounting contributes to decision making in a variety of organizational contexts by adopting a “new” and “accessible” approach. In the mind of the authors, such an approach should include both a presentation of practical techniques and appropriate references to research. Also, quantitative and qualitative issues are to be raised for each technique covered.

1. Outline of the book

The book is divided into ten chapters: (1) An introduction to management accounting; (2) Cost analysis and decision making; (3) Costing products and services; (4) and (5) Management accounting and the planning process — 1 and 2; (6) and (7) Management accounting and the control process — 1 and 2; (8) Operational decision making; (9) Strategic decision making; (10) Management accountancy and performance measurement systems. Each chapter starts with a list of key learning objectives, ends with a conclusion, a summary, recommended further readings (summaries in one to two pages of research articles), review questions, and one to three case studies (except for Chapter 1). Unfortunately, no answers are provided to the review questions or to the case studies (no other resource, such as a website, was available at the time this review was written).

This content is similar in many respects to the material covered in most management accounting textbooks. This raises the question of whether there is something unique or novel

about this text. Chapter 1 proposes a thorough introduction to management accounting: nature and role, history and context, scope, time dimension, etc. Management and financial accounting are paralleled in what they have in common (p. 5) and in which ways they are different. Related issues of ethics and power are also interestingly developed (p. 12–14). End-of-chapter review questions are a bit too difficult at this introductory stage.

Chapter 2 introduces a lot of useful concepts related to cost analysis and decision making: cost objects, cost classification, unit costs, etc. But the different types of costs are defined and illustrated too briefly (pp. 29–30): only one page is devoted to sunk, relevant, avoidable, opportunity, and marginal/incremental costs. A table presenting the different types of costs to be used depending on the context and the type of decision at hand would make the chapter easier to get across. In the same vein, concepts such as responsibility centers, apportionment of overheads, and revised budgets are used without sufficient, clear explanations. Given this, the “SHB” case study (pp. 44–46) seems too complex and would be easier to do after having read the next chapter.

Chapter 3 provides an in-depth discussion of the issues of product and service costing. Overheads allocation and apportionment, activity-based costing (ABC), and marginal/variable costing are reasonably clearly developed. Although, the presentation of ABC does not really show how it contributes to decision making (pp. 60–68). Further, some concepts are used before being clearly introduced (for example flexible budgets are used in the “Billy Griffiths” case, pp. 75–76, even though this concept is only developed in Chapter 6, pp. 151–155). More generally, the chapter would benefit from a table clearly explaining when one should use full costing vs. variable costing.

Chapters 4 and 5 focus on the role of management accounting in the planning process. Chapter 4 tackles general issues about planning and budgeting. It provides excellent examples and useful tables and figures illustrating the articulation between an organization’s missions, objectives, aims, goals, targets, and plans (see for example Table 4.1 and 4.2, pp. 85–88; and Fig. 4.1, p. 90). Chapter 5 extends the discussion to cost-estimation methods (engineering methods, inspection of accounts, high–low method, and mathematical methods) and “advanced” budgetary techniques (zero-based and activity-based budgeting, balanced scorecard, etc.). Although up-to-date and well documented, this chapter lacks a clear comparison of the various methods it presents.

In Chapters 6 and 7, the authors outline various aspects of control: the control process in itself, feedback concepts, standard costing and variance analysis, and the influence of control systems on organizational design. This is done in a very understandable fashion, based on clear examples and calculations. More specifically, there is a rather effective treatment of variance’s decomposition into subvariances, which remains a difficult topic for non-specialist readers. Tables and figures provide a helpful basis for such a treatment (see Table 6.12, p. 162; Fig. 7.1, p. 189; Fig. 7.2, p. 191; and Fig. 7.3, p. 198).

Chapter 8 delves into operational decision making issues such as marginal and relevant costing and linear programming. Various types of decisions (product-mix adjustment, make or buy, product abandonment, etc.), are clearly presented through a series of exhibits (pp. 221, 224–227, 231–240, and 245–246). This chapter is far more understandable and thorough than previous ones dealing with cost for decision. Although, further recommended readings, such as the articles by Otley (2001) and Spicer (1988), seem a

bit out of place as they deal with performance management systems rather than operational decision making.

Chapter 9 is entitled “Strategic decision making” but focuses mainly on investment appraisals. The various steps of this latter process are more or less discussed: specification of scope and objectives of the project, identification of relevant cash flows, application of appraisal methods, and analysis of results and decision. The authors also tackle related important issues such as advantages and drawbacks of each appraisal technique and qualitative, non-financial criteria.

Finally, performance measurement systems (PMS) are discussed in Chapter 10. After having explained the need for effective PMS, the authors provide an interesting review of the impact of various environmental aspects on the design of such systems. Unfortunately, transfer-pricing considerations are developed without reference to the different types of responsibility centers (pp. 299–307). A clear presentation of financial and non-financial aspects of performance measurement follows. Completed by three interesting case studies and a wide range of recommended further readings, this chapter provides a good basis for an introduction to advanced management accounting/control systems courses.

2. Discussion

How do the authors succeed in achieving their goals (i.e. being new and accessible, making sound references to research, raising quantitative and qualitative issues, dealing with a variety of contexts)?

Overall, the approach to many concepts is pragmatic, realistic and “open-minded.” The book is easy to read and “accessible” for the intended audience, thanks to the clear writing style of the authors and the good graphics and tables. This is also due to the relatively short length of the book (347 pp.) compared to other well-established counterparts: Atkinson, Kaplan and Young (2004) *Management Accounting*, 624 pp.; Drury (2004) *Management and Cost Accounting*, 1280 pp.; Horngren, Datar and Foster (2006) *Cost accounting*, 896 pp.

But covering almost all possible issues in management accounting in 350 pages hinders the authors from developing many related issues (such as qualitative ones) in depth. This could also explain why no solutions are provided to the review questions and case studies. However some space could be saved as the summaries and conclusions provided are often redundant and some further recommended readings are already included in the body of the chapters (for example, pp. 10–11 and 17–20).

Also, a clearer outline of examples would make the book more user-friendly. Some examples are part of the text (see pp. 31–33), others are exhibits within a chapter (such as exhibit 4.1, pp. 93–105) or at the end (exhibit 2.1–2.3, pp. 37–42) of a chapter. Putting all examples in exhibits within the chapters would make the book even easier to read.

Most recommended further readings – linking research to practical issues – are well-chosen and up-to-date (see for example pp. 6, 10–12, 42–44, 200–205, and 316–317). This is another strong point of the book and it deserves to be highlighted as it is quite uncommon. Specificities of the public sector are interestingly and thoroughly developed

(for example pp. 9–10, 107–108, 132–133, 329–331) as well as a variety of other organizational settings, such as services, retailing, sports, manufacturing, and education.

As noted earlier, no answers to the case studies and review questions are provided. This partly hinders the intended audience from self-training and assessment. It also would be useful if the topics tackled by these cases and questions were clearly indicated as is done in other management accounting textbooks. Further, many case studies only deal with either quantitative issues (“Budget preparation,” Ch. 4; “Tuba Accessories,” Ch. 5) or qualitative ones (“SHB,” Ch. 1; “Jim Davies,” Ch. 3, “Dayview Ltd,” Ch. 7; “Callas Plc,” “Fantasy Planet University,” and “Sioca Pls,” Ch. 10). However, four of them present a good mix of both calculations and discussion questions (“Billy Griffiths,” Ch. 3; “Odd-Job Manufacturing Co.,” Ch. 8; “Branchester United,” Ch. 9; “Social services agency,” Ch. 9).

Finally, the main drawback of the book is its (lack of) structure. The 10 chapters are organized in a stand-alone fashion without any sort of grouping. However, these chapters deal with different aspects and functions of management accounting that could easily fall into two parts: information for decision making (Chapters 2–3, 8 and 9) and information for planning, control, and performance measurement (Chapters 4–7 and 10). This mixture of themes is confusing for the reader as many concepts are partly introduced in early chapters and then recalled and developed later in the book. For example, definitions of the various types of costs are provided in Chapter 2 and then only used in the context of decision making in Chapters 8 and 9. A reordering of chapters in two parts would allow for an easier progression throughout the book and would make it more accessible for novice readers.

That being said, I would recommend this book for readers who wish to develop a general understanding of management accounting issues. The authors have made a commendable effort to tackle a wide range of issues dealing with decision making and the planning/control process in organizations within a limit of 350 pages. It makes this book very well suited for introductory management accounting courses at all levels (undergraduate, postgraduate, and professional). However, those who wish to specialize in the management accounting/control field would be better off investing in a more expanded textbook.

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Thomas R. Robinson, Paul Munter, Julia Grant, Financial statement analysis: A global perspective, Pearson/Prentice Hall, 2004, ISBN: 0-13-122696-7 (International edition, 793 pages, \$145.60)

This text is designed for financial statement analysis modules in undergraduate or graduate business programs. In the preface, the authors indicate that it could also be used in MBA financial accounting modules and that, although the ideal user is a student who has taken one prior accounting module, the book is also accessible to those with no accounting background. It comprises three parts. Part 1 provides an introduction to accounting, including uses of financial statements, the regulatory context for accounting, transaction recording, the income statement, the balance sheet, and the statement of cash flows. Part 2 covers a number of financial statement analysis topics, including common-size analysis, ratio analysis, credit analysis and equity analysis. This part ends with a chapter on valuation. Part 3 covers a number of advanced accounting issues, including inventories, fixed assets, deferred tax, employee stock options, post-retirement benefits, derivatives, and foreign currency translation. It ends with a chapter on the use of financial statements in performance evaluation.

An attractive feature of the book is that it addresses topics by reference both to U.S. GAAP and to International Accounting Standards, which is important now that analysts need to be comfortable working with both sets of standards. The authors make good use of examples based on Motorola (U.S. GAAP) and Nokia (international standards) to illustrate the application of techniques, and to illustrate differences between U.S. GAAP and international standards. Another attractive feature of the text is its use of illustrative material from brokers' reports and conference-call notes. I also like the end-of-chapter cases, which are of a good length and complexity for working through in case classes. I note also that the cases in the "advanced issues" section of Part 3 require students to apply financial statement analysis techniques covered in Part 2. The text is especially attractive for modules that aim to combine an introductory coverage of both basic and more advanced accounting topics, by reference to both U.S. GAAP and International Accounting Standards, with coverage of the basics of financial statement analysis.

I have a couple of suggestions for possible changes in subsequent editions. First, the authors emphasise that their text eliminates reference to "debits" and "credits." Avoidance of these terms can have its advantages, but the resultant avoidance of emphasis on the double-entry nature of accounting transactions might cause difficulties when covering some of the more advanced topics in the final section. And many students will come up against the terms sooner or later in their studies or in their professional lives. Perhaps the authors might consider extending their coverage of transaction recording in their introductory chapter to encompass this. Second, I felt that the coverage of valuation was rather thin. This topic is covered in only one chapter at the end of Part 2. Much of the material on financial statement analysis techniques in Part 2 of the text leads naturally into valuation applications, and there is a wealth of recent academic research on accounting-based valuation methods that can be directly related to issues faced by practitioners since understanding of valuation methods is important to financial analysts. I would have liked to see a more extensive coverage of this topic.

This text is well worth considering for a certain type of financial statement analysis module. For a module aimed at students who wish to build upon a good accounting background to study financial statement analysis, this text may contain too much accounting and too little financial statement analysis, particularly on valuation. For such modules, the texts by Palepu, Healy, and Bernard (2004) and Penman (2004) might be more suitable. For a module that aims to provide introductory coverage of basic and more advanced accounting topics and of the basics of financial statement analysis with reference to both U.S. GAAP and International Accounting Standards, this text is well worth looking at.

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Hennie Van Greuning, International financial reporting standards — A practical guide, 2nd edition, The World Bank, Washington (USA), 2005, 0-8213-5910-X (x+297 p, US\$30.00)

Following several other countries in the world, the European Union decided in 2002 to make the use of International Financial Reporting Standards (IFRS) mandatory for listed companies as of 2005. The implementation of this new regulation gave rise to an increasing interest for these standards, not only from users of financial statements, but also from accounting professionals who, until recently, did not feel the need for studying standards they did not use in their daily activities. Practical guides on IFRS have thus multiplied in several languages, with the aim of rendering these standards accessible to a large audience.

These books can be classified into two categories. Some are simply a collection of summaries obtained by extracting the main provisions of each standard. Such work may be useful to specialists of accounting searching for a brief outline of international standards, but it is of limited interest for those who do not have a thorough knowledge of accounting. On the books of the second category, the description of standards is complemented by practical examples that allow non-specialists to really understand their consequences on financial statements. The work of Hennie Van Greuning undeniably belongs to the latter category since its declared objective is "to focus on the needs of executives and financial

analysts in the private and public sectors who might not have a strong accounting background" (p. ix).

Unlike other books whose plan is based on the main subdivisions of the balance sheet and income statement (assets, liabilities, equity, revenues and expenses, etc.), each standard (either IFRS or IAS) here is dealt with in a specific chapter. This is probably a preferable solution, in as much as most standards, as for example IAS 12 (income taxes) or IAS 21 (the effects of changes in foreign exchange rates) to name but a few, have an impact on several headings of financial statements.

Each chapter follows a common outline. It begins with a description of the objectives of the standard and a presentation of its key concepts and definitions. Then a section summarizes the main provisions of the standard, focusing on recognition and measurement issues. It is followed by a description of disclosure requirements. Each chapter ends with a discussion of the implications for financial analysis. Most chapters also include examples aimed at illustrating selected dispositions of the standard.

One of the strengths of this book is its high pedagogical quality. An illustration is the fact that the author does not hesitate, when necessary, to simplify official definitions contained in standards or to provide additional explanations in order to make these definitions more understandable by non-specialists. Admirably, these changes are developed in such a way as to maintain the related concepts and not lead to significant losses of rigor or accuracy. The same concern for pedagogy appears in the part of each chapter that describes the main provisions of each standard. This section is written in a bold and particularly clear style, allowing the author to summarize the substance of the standard in one or two pages only.

But the clearest evidence of the author's concern for pedagogy is the presence of practical examples at the end of each chapter. These examples, which do not require any knowledge of the bookkeeping technique (there is no accounting entry) provide illustrations of the most important points, allowing the reader to better understand the main provisions of the standard. One may regret, however, that these examples are relegated at the end of the chapter, rather than being presented immediately after the description of the corresponding provisions.

What makes this book really original is the presence, in each chapter, of a section devoted to the implications of each standard for financial analysis. In this section, the author exposes the impact that alternative accounting treatments have on financial statements and main ratios used by analysts. The choice of issues covered is relevant, explanations are clear and understandable by any person with a basic knowledge of financial analysis. The use of tables summarizing the effects of each accounting treatment facilitates the understanding of the impact of standards and again, illustrates the author's concern for pedagogy. This section fully justifies the orientation of the book and gives it the opportunity to break free from most other guides on IFRS that are mainly directed toward accountants.

As any book, this one has limitations, most of them being the consequence of its relatively small size. The bound volume of IFRS published by the International Accounting Standards Board (IASB) contains more than 2000 pages. Summarizing these standards in a 300 pages book is a difficult challenge, especially when description of standards are completed with examples and comments. It is thus no wonder that there are

some excessive simplifications as, for example, when the choice of the consolidation method (full consolidation, proportionate consolidation, equity method, or fair value) is described as depending only on the percentage of ownership (p. 49), while according to the IASB, this choice is based on control, a concept much wider than ownership. Another example of excessive simplification is when the author notes that the choice of the useful life of an asset does not affect cash flow (p. 128), an assertion that eludes the tax effect of depreciation. Nevertheless, such mistakes are scarce and globally, the quality of the simplification effort must be emphasized.

The desire to maintain the length of the book into reasonable limits probably also led the author to make choices and provide explanations that might be useful to a good understanding of standards. For example, one may regret that some non-obvious definitions [e.g. "temporary differences" (IAS 12)] are not illustrated with examples that would explain their meaning. Given the importance of the issue, it would also have been useful to describe more deeply the rules governing the revaluation of tangible fixed assets and to provide an example of such revaluation. The same applies to changes in accounting policies (IAS 8).

Generally speaking, space devoted to some particular standards seems inadequate as in the case for IAS 39, complex standard, whose description of recognition and valuation rules does not exceed 2.5 pages. In some cases, the reader would find practical examples provided at the end of each chapter helpful, however, these examples do not provide answers to all questions raised in the chapter. This shortcoming must nevertheless be moderated in as much as it was probably difficult to do a better job in such a limited volume.

Given the personality of both the author and the publisher (Hennie Van Greuning is a senior advisor in the World Bank's Treasury and the book is published by World Bank), some potential readers might fear that this book reflects the World Bank's view of financial reporting more than it provides a fair description of IFRS. They must be reassured. Only the chapter on the accounting framework, because of its insistence on transparency (a concept absent in the IASB framework), may be considered as stamped with some subjectivity. All other parts of the book provide a fair description of IFRS.

To conclude, Hennie Van Greuning seems to have attained his objective which was to provide to non-specialists a clear description of the main provisions of IFRS, insisting on the impact that these standards have on financial statements. Of course this work is neither an accounting textbook, nor a financial analysis handbook. It could nevertheless constitute a useful additional reference for a course on financial statement analysis.

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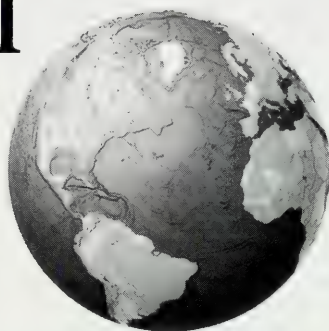
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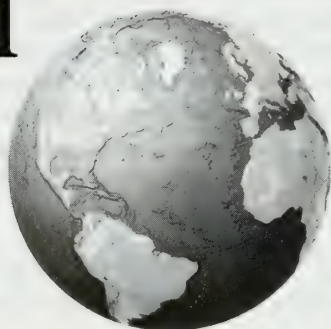
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Leadership structure and the value of debt contracts: Evidence from the Canadian market

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Abstract

This paper investigates the impact of a firm's leadership structure on its ability to generate value from loans by examining the market reaction to the disclosure of Canadian bank credit agreements. Two leadership structures are considered in this paper. In the first scenario, the positions of Chief Executive Officer and Chair of the Board are held by two different persons (denoted as a Separate CEO–Chair structure); in the second scenario, both positions are held by the same person (denoted as a Combined CEO–Chair structure).

We observe a stronger market reaction to the announcement of bank credit agreements when firms have a Separate CEO–Chair structure (relative to a Combined CEO–Chair structure). This stronger market reaction for firms with a Separate CEO–Chair structure suggests that the division of CEO and Chair of the Board responsibilities between two people enhances a firm's ability to generate value from its loans. This conclusion is further supported by the fact that the observed market reaction for firms with a Separate CEO–Chair structure is even greater when the size of the board of directors is small. Our results also indicate that bank monitoring activities are more valuable for firms with a Combined CEO–Chair structure and no institutional shareholder.

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Keywords: Leadership structure; Governance; Debt contract; Credit agreement

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1. Introduction

We investigate the impact of a firm's leadership structure on the value of its debt contracts by examining the market reaction to the disclosure of bank credit agreements. There are two types of leadership structures in this paper: the positions of Chief Executive Officer and Chair of the Board are held by two different persons (i.e., Separate CEO–Chair structure), or both positions are held by the same person (i.e., Combined CEO–Chair structure). Our results support two distinct valuation/future-performance implications of new bank debt contracts. First, when a firm is organized in a low-agency-cost form (i.e., separation of CEO and Chair positions) new debt contracts are associated with an increase in firm value when measured by debt-announcement-period returns. This is consistent with a value-adding performance role for such an organizational form. Second, for firms organized in the higher-agency-cost combined CEO–Chair form an increase in firm value is observed only for firms lacking institutional ownership monitoring. This suggests that the valuation implications and, by extension, the agency monitoring impact of institutional equity ownership and bank debt ownership are similar for such firms. These findings are inconsistent with any sort of positive efficiency-gain role for combined CEO–Chair structures in debt-issuance settings.

In the extant literature, the effectiveness of various leadership structures is often measured with reference to a firm's overall performance (e.g., Pi & Timme, 1993; Rechner & Dalton, 1991). However, in practice it is difficult to isolate the effect of leadership structure on firm performance since firm performance is strongly influenced by many factors that are not related to differences in leadership structure (such as interest rates, economic growth rates, and changes in governmental regulations and policies). As a result, measures of firm performance may not be well suited to detecting the effects of different leadership structures. This may explain some of the inconsistencies in results documented in previous studies. By using an event-study methodology, the impact of these potentially confounding factors can be mitigated. This allows us to contribute to the debate on the effectiveness of various leadership structures by providing new empirical evidence from a different perspective.¹

Corporate governance consists of controls imposed by the board of directors and by debtholders (Shleifer & Vishny, 1997). A firm's leadership structure is an important element in its overall corporate governance. In their analysis of governance issues leading to the demise of the Enron Corporation, Healy and Palepu (2002) emphasize how important director monitoring is to the efficient functioning of capital markets. In addition, the SEC and NYSE have recently proposed regulatory reforms aimed at improving corporate governance of companies listed on US exchanges (Canadian regulators are proposing similar regulatory reforms). These reforms would require that corporate boards of all listed companies be comprised of a majority of independent

¹ The event-study approach has been used in prior literature to examine the relative effectiveness of leadership structures. For example, Brickley et al. (1997) examine the market reaction to changes in leadership structure. Given that our objective is to examine the impact of a firm's leadership structure on the value of its loans, and not to measure its overall relative effectiveness, several costs associated with a Separate CEO–Chair raised in Brickley et al. (1997) are not relevant in our analysis (discussed below).

directors and that audit committees be comprised only of independent directors (Pitt, 2002).

The value of a debt contract to a firm is the benefit received by the shareholders from the contract, and the expected value of this benefit should be reflected in the firm's stock price at the initial announcement of the debt contract. The market reaction to this announcement of new debt depends in part on the firm's corporate governance, since the governance structure of the firm affects the firm's performance. We examine the market reaction to the announcement of debt contracts while controlling for firms' leadership structure (and other related variables), in order to measure the impact of leadership structure on the value of debt contracts to firms.

Past studies examining the effectiveness of the two leadership structures have been extensive but not conclusive and have relied almost exclusively on U.S. data. Agency theory argues that the Separate CEO–Chair structure is preferable. Jensen and Meckling (1976) argue that the costs of an agent's actions are due to incomplete alignment of the agent's and owner's interests. To control for agency problems, there must be an effective corporate-governance structure to separate the management of decisions and the control of decisions (Fama & Jensen, 1983). The theory states that the CEO in a Combined CEO–Chair structure cannot separate the firms' interests from his/her personal interests. Also, without the direction of an independent leader, it is more difficult for the board to perform its critical functions (Jensen, 1993). Furthermore, the CEO in a Combined CEO–Chair structure may engage in opportunistic behavior that is detrimental to the interests of the firm's shareholders.

Some empirical evidence supports the agency-theory argument. For example, Rechner and Dalton (1991) used three accounting measures of profitability to study the performance of a sample of Fortune 500 firms and found that the firms with a Combined CEO–Chair structure underperformed firms with a Separate CEO–Chair structure. Similarly, Pi and Timme (1993) provide evidence that banks with a Combined CEO–Chair structure are less profitable than banks with a Separate CEO–Chair structure. Fosberg (1999) and Core, Holthausen, and Larcker (1999) find that on average CEOs who are also board chairs receive higher compensation than CEOs who are not board chairs.

However, it is also argued that a Combined CEO–Chair structure promotes better communication and information flow between management and the board of directors, and that better communication can lead to better decision making by the board. If this is true, firms with a Combined CEO–Chair structure should not exhibit inferior performance relative to firms with a Separate CEO–Chair structure. Baliga and Moyer (1996) provide evidence that separating the two positions neither increases a firm's accounting profit nor its stock price. Brickley, Coles, and Karrell (1997) argue that there are specific costs associated with maintaining a Separate CEO–Chair structure, including agency costs of controlling the behavior of the chairperson, information costs, costs of having firms change their succession processes, and costs resulting from inconsistent decision making with shared authority. They find no evidence that the Combined CEO–Chair structure is associated with inferior accounting and market returns.

Our study contributes to the literature by providing additional evidence on a specific aspect of leadership structure using a different economic setting (Canadian data). We use a sample of bank credit-agreement announcements in the Canadian market between 1984

and 1997 to examine the market reaction to the disclosure of credit agreements while controlling for firms' leadership structures. We observe a stronger market reaction to the announcement of credit agreements when firms have a Separate CEO–Chair structure relative to firms with a Combined CEO–Chair structure. This suggests that the division of responsibilities between CEO and Chair of the Board enhances a firm's ability to generate value from its loans. This conclusion is supported by the fact that the market reaction for firms with a Separate CEO–Chair structure is further increased when the size of the board of directors is small. We also document that bank monitoring activities are most valuable for firms with a Combined CEO–Chair structure and with no institutional shareholders, and to a lesser degree, when the board is dominated by inside directors. These results suggest that the division of responsibilities between CEO and Chair of the Board enhances a firm's ability to generate value from its loans, and has implications for equity valuation at the issuance of debt.

The remainder of this paper is structured as follows. In Section 2, we discuss the related literature and develop hypotheses. In Section 3, we describe the data collection and methodology. Section 4 presents the empirical results on the market reaction to the disclosure of bank credit agreements and in Section 5 we provide conclusions.

2. Related literature and hypotheses development

2.1. Related literature

Corporate governance consists of controls imposed by shareholders and debtholders to reduce agency costs and improve firm value. These controls are linked to the composition of the board of directors (proportion of outside directors, size, and leadership structure), the ownership structure of the firm (the presence of an institutional shareholder), the quality of the external auditor, and the concentration of borrowing.² To investigate the effectiveness of leadership structure on the value of debt contracts, we develop our hypotheses by analyzing the relationship between the leadership structure and the proportion of outsiders on the board, the presence of institutional shareholders and the size of the board of directors. The quality of the external auditor and the concentration of borrowing are included as control variables in the multivariate analysis (Section 4.3).³ For the sake of brevity, in the development of our hypotheses, we do not discuss the effect of the control variables on market reaction (their impact is discussed in detail in the multivariate-analysis section which follows).

The market reacts to the announcement of bank credit agreements because it can infer the lender's assessment of the firm's quality and because the agreements also provide firms with opportunities to generate value directly from the use of the loans.

² The Toronto Stock Exchange (TSE) responded to the recommendations of their Corporate Governance Committee (TSE, 1994) by introducing corporate-governance disclosure guidelines regarding the importance of including outside directors on the board and audit committee (Bujaki and McConomy, 2002).

³ Since one of the (four) large international audit firms audits most of the firms included in our sample, we do not include a measure of the quality of the external auditor in the univariate analysis.

Prior to granting a loan, a bank usually carries out an investigation to evaluate the firm's ability to repay the loan. Therefore, the disclosure of a bank credit agreement reveals the bank's superior private information gained during its investigation (Andre, Mathieu, & Zhang, 2001; Fama, 1985; James, 1987). Several studies have documented a positive market reaction at the disclosure of bank credit agreements (Aintablian & Roberts, 2000; Best & Zhang, 1993; Datta, Iskanda-Datta, & Patel, 1999; James & Wier, 1990; Lummer & McConnell, 1989; Slovin, Johnson, & Glascock, 1992; Slovin & Young, 1990).

The market's reaction to the disclosure of bank credit agreements also reflects the expected increase in firm value from the use of the loan. Two reasons can explain this increase in value. First, debt contracts can improve the firm's existing *controls*. Shleifer and Vishny (1997) point out that a debt contract is a control mechanism for solving agency problems. The lender can prevent the borrowing firm from investing in negative net-present-value projects, it can force the sale of assets that are worth more in alternative uses or it can prevent shirking (Dewatripont & Tirole, 1994; Shleifer & Vishny, 1997).

The incremental value derived from banks' monitoring activities is a decreasing function of the effectiveness of the firm's other controls. In other words, the weaker a firm's controls are, the more important the bank's monitoring activities are to the shareholders, and a stronger market reaction to the announcement of a bank credit agreement should be observed. Both theoretical and empirical evidence suggests that monitoring of firms by financial and informational intermediaries including banks, financial analysts, auditors, and governance agents (e.g., boards of directors and influential shareholders) offers one possible solution to these information problems (Beasley, Carcello, Hermanson, & Lapides, 2000; Fama & Jensen, 1983; Titman & Trueman, 1986).

Second, the increase in firm value depends on how *efficiently* the debt is used.⁴ Efficiency is determined by the quality of the firm's decision-making and the implementation of its decisions. Better decision-making and implementation processes can allow firms to generate higher net present value projects. Therefore, the market reaction to the disclosure of a bank credit agreement should be stronger for firms that can employ loans more efficiently.

2.2. Hypotheses development

Our first two hypotheses deal with the notion of control; our third hypothesis deals with the notion of efficiency. Prior studies provide evidence that when one control is improved,

⁴ The notion of control used in this paper refers to the ability of the manager to act in his or her own interest. The notion of efficient use of the loan refers to the quality of the decision process of the firm. While there is a correlation between these two concepts, the quality of the decision process can vary across firms independently of the quality of control. In other words, the decision process of a firm with a strong internal control system can be influenced by other factors such as the quality of the management team and the size of the board of directors. The disclosure of bank credit agreements does not provide information about leadership structure per se since it is already publicly known.

the incremental value of another control is usually reduced. For example, McWilliams and Sen (1997) document that the influence of outside directors on corporate control is inversely related to the effectiveness of the leadership structure. Consequently, the relationship between leadership structure and other control factors are mainly substitutive to each other in determining the overall quality of a firm's control. As a result, the incremental contribution of a bank's monitoring activities to corporate governance should be a decreasing function of the effectiveness of the other controls. On one hand, if the leadership structure and other factors are weak in respect to control, the bank's monitoring activities can compensate for the firm's lack of control. On the other hand, if leadership structure is strong in control, a bank's monitoring activities should not significantly add to the firm's overall level of control.

We use the percentage of outsiders on the board of directors and the presence of institutional shareholders as additional control factors to the leadership structure in developing our hypotheses. The existing literature provides evidence that outside directors do a better job of acting in shareholders' interests than inside directors. More specifically, outside directors can monitor the firm better because they are independent of management.⁵ Since both banks and outside board members can act as monitoring agents, when a board is dominated by inside directors there is a stronger need for banks to perform the monitoring function. Therefore, we expect that firms with a *weaker* leadership structure can derive *higher* value from bank monitoring activities if insiders dominate the board of directors. For firms with a *strong* leadership structure, the value derived from bank monitoring activities should not be affected by the composition of the board. This discussion leads to Hypothesis 1:

Hypothesis 1. For a firm with a weak leadership structure, the market reaction to the disclosure of a bank credit agreement is stronger if the board of directors is composed mainly of insiders.

In other words, the market relies more on the external monitoring of a firm by a financial institution in cases where the independence of a firm's board is suspect. Note that if a firm's leadership structure is strong with respect to control, the market reaction to the

⁵ For example, prior empirical work indicates that a higher proportion of outside directors on the board ensures the replacement of a poorly performing CEO (Huson, Parrino, & Starks, 2001), and is associated with a higher level of corporate-governance disclosure (Bujaki and McConomy, 2002). Lambert, Larcker, and Weigelt (1993) find that CEOs receive higher compensation when they have personally appointed a greater proportion of directors to the board. Rosenstein and Wyatt (1990) observe a positive stock-price reaction to the announcement of the appointment of an additional outside director, which suggests that shareholders' wealth may be affected by the proportion of outside directors. Byrd and Hickman (1992) observe a higher market reaction when bidding firms in takeover attempts have a proportion of outsider directors on their boards greater than or equal to 50%. Lee, Rosenstein, Rangan, and Davidson (1992) document that boards dominated by independent members are associated with larger abnormal returns in transactions in which management participates in taking the entire firm private (management buyouts). Brickley, Coles, and Terry (1994) find that the average stock-market reaction to announcements of poison pills is positive when the board has a majority of outside directors and negative when it does not. Borokhovich, Parrino, and Trapini (1996) document a strong positive relation between the percentage of outside directors on the board and the frequency of outside CEO successions.

disclosure of a bank credit agreement should be unaffected by the composition of the firm's board of directors.⁶

Since an institutional shareholder usually holds a significant number of shares and can mitigate agency costs (Brickley et al., 1997), it can also act as an important complementary control to the leadership structure.⁷ Following the argument from Hypothesis 1, we develop Hypothesis 2 to test the strength of the two leadership structures with respect to control in the presence (or absence) of institutional shareholders:

Hypothesis 2. For a firm with a weak leadership structure, the market reaction to the disclosure of a bank credit agreement is stronger if there are no institutional shareholders.

Again, the market relies more on the external monitoring of a firm by a financial institution in cases where the independence of a firm's board is suspect. Note that if a firm's leadership structure is strong with respect to control, the market reaction to the disclosure of a bank credit agreement should be unaffected by the presence (or absence) of institutional shareholders. In other words, the market relies on institutional shareholders to mitigate the lack of control, and as a result, does not need to rely as much on the external monitoring function performed by financial institutions.

Our third hypothesis considers the efficiency with which loans are employed by the borrowing firm. If a firm has a leadership structure that is more efficient in making and implementing decisions, *ceteris paribus*, the incremental value derived from a loan is higher. As a result, the market reaction to the disclosure of a bank credit agreement should be stronger. Factors affecting efficiency are mainly complementary to each other since an efficient system usually requires every element in the system to function well.

Yermack (1996) provides evidence that smaller boards of directors are more efficient. In order to determine which leadership structure leads to more efficient use of the loan, we control for the size of the board. We expect that the benefit of smaller boards can be better captured by a more efficient leadership structure. Consequently, when a firm has an efficient leadership structure, the market reaction should be *stronger* when the board is *smaller*. However, if the leadership structure is not efficient in the first place, the size of the board should not have a significant impact on the operation of the firm. Hypothesis 3 allows us to investigate the efficiency of debt usage. Formally, we predict:

Hypothesis 3. *Ceteris paribus*, if the leadership structure of a firm is efficient with respect to debt usage, then the market reaction to the disclosure of a debt contract should be stronger for a firm with a small board of directors.

⁶ Hypothesis 1, as well as the more general notion that Combined CEO–Chair structures pose greater agency/control issues than Separate CEO–Chair structures, both have a potential endogeneity problem. Specifically, in choosing CEO–Chair structure and board composition a firm presumably takes into account the amount of agency costs associated with these arrangements. One could argue that Combined CEO–Chair and high inside-board firms choose these structures because the inherent agency benefits from alternative more independent structures are mixed. If this is the case, other agency-cost-reduction arrangements (such as lender monitoring) may also have mixed or indeterminate benefits.

⁷ While the presence of a large shareholder minimizes the agency problems arising from manager–shareholder conflicts of interest, it may also create conflict between the interests of the large shareholder and minority shareholders (Fan & Wong, 2002).

Note that if the leadership structure is not efficient with respect to debt usage, then the market reaction to the disclosure of a debt contract should be unaffected by the size of the board of directors.

3. Data and methodology

The *Globe & Mail* on CD-ROM and the database of Canadian Business and Current Affairs (CBCA) are used to obtain announcements of Canadian bank loan agreements for the period from 1984 to 1997.⁸ An exhaustive search was conducted using key words to identify all publicly available announcements of bank credit agreements disclosed in the *Globe & Mail*. We kept all announcements that did not contain other non-trivial corporate news.⁹ Furthermore, only firms with stock prices on the *TSE Western* daily file are included in the sample. We obtained a total of 173 announcements for firms listed on the Toronto Stock Exchange (TSE). From this total, 13 observations were eliminated due to significant thin-trading problems. We collected information regarding the borrowing firms' corporate governance structures from their proxy statements. We could not locate the proxy statements for 38 companies, thus, reducing the sample to 122 announcements.

Table 1 provides descriptive statistics regarding characteristics of the bank credit agreements (Panels A and B) and various aspects of the firms' corporate-governance structures (Panels C to F). As indicated in Panel A, the total sample of announcements includes 50 lines of credit, 57 term loans and 15 announcements involving both lines of credit and term loans. However, the average dollar amount of the loans can only be determined for 112 of the 122 announcements. The average value is \$317 million (Can) with a maximum of \$2.52 billion (Can) and a minimum of \$0.5 million (Can) (Panel B).

Our announcement sample is composed of 92 new credit agreements, 27 renewals, and three announcements including a new and a revised credit agreement (Panel A). A credit agreement is classified as new if the announcement in the *Globe & Mail* makes no mention of a revision or a modification of an existing loan or if it is specifically identified as a new credit agreement. Otherwise, the loan is classified as a revised credit agreement.¹⁰

We control for the number of lenders involved in the credit agreements since Preece and Mullineaux (1996) observe that the size of the market reaction to loan announcements is a

⁸ The *Globe & Mail* is a daily newspaper that specializes in economic issues and is the Canadian equivalent of the Wall Street Journal. Most economic announcements made by Canadian firms are published in this newspaper.

⁹ Given that some parent companies are not Canadian corporations, there is a possibility that the announcements in Canada lag the announcements in foreign countries. We conducted a search using a large proportion of our sample and found no evidence that such a lag exists.

¹⁰ Previous studies provide evidence that the market reaction to the disclosure of a revised credit agreement depends on the type of revision (i.e., favorable, unfavorable, or mixed). Using the criteria defined by Lummer and McConnell (1989) to distinguish between the announcements (time until maturity, relative interest rates, debt covenants, and the dollar amount), we find that our sample of renewals is mostly composed of favorable revisions. Given that the frequency of the two other types of revisions is relatively low, we do not control for type of revision in our tests.

Table 1
Descriptive statistics

(A) Sample composition	
	Number of observations
Full sample	122
Lines of credit	50
Term loans	57
Lines of credit and term loans	15
New credit agreements	92
Revised credit agreements	27
New and revised credit agreements	3
Credit agreements provided by single banks	40
Credit agreements provided by multiple banks	82

(B) Loan amount, firm size and leverage ratio

	Number of observations	Mean (S.D.)	Median	Minimum	Maximum
<i>Loan amount (in million of dollars)</i>					
Full sample ^a	112	317 (541)	125	0.5	2520
Lines of credit	49	316 (483)	100	4.1	2250
Term loans	49	303 (590)	111	0.5	2520
Lines of credit and term loans	14	372 (581)	198	34.6	2200
New agreements ^b	87	327 (581)	111	0.5	2520
Revised agreements	23	284 (380)	150	4.1	1400
<i>Firm size (in million of dollars)</i>					
Full sample	122	2229 (5847)	464	0.8	38,092
<i>Leverage ratio</i>					
Full sample	122	0.55 (0.27)	0.58	0.01	1.65

(C) CEO–Chair structures

	Combined CEO–Chair structure	Separate CEO–Chair structure	Unknown
Full sample	57	60	5
Small firms	27	29	5
Large firms	30	31	0

(D) Institutional shareholder

	Presence of an institutional shareholder	Absence of an institutional shareholder	Unknown
Full sample	60	62	0
Small firms	31	30	0
Large firms	29	32	0

(E) Composition of the board of directors

	Mean (S.D.)	Median	Minimum	Maximum
Size of board of directors	10.3 (3.90)	10	5	21
Number of outside directors	7.6 (3.67)	7	2	17

(continued on next page)

Table 1 (continued)

(F) Ownership of directors on the board					
	Number of observations	Mean (S.D.)	Median	Minimum	Maximum
Full sample	119	0.14 (0.23)	0.03	0.00	0.97

(G) International audit firms			
	Presence of an international audit firm	Absence of an international audit firm	Unknown
Full sample	111	11	0

^a All required information is available for a total of 112 observations.
^b Out of the 112 observations in this sub-sample, 2 releases contained both a new and revised credit agreement.

declining function of the number of lending banks. Petersen and Rajan (1994) provide evidence that concentration of borrowing has value for small firms. In our sample, 40 agreements were issued by a single bank, while a syndicate of banks was involved in 82 cases (Panel A).

Panels C to F provide information with respect to some determinants of the sample firms' corporate-governance structures. The first variable of interest for this study is the presence of a Combined CEO–Chair structure versus a Separate CEO–Chair structure (Panel C). We were able to obtain this information for a total of 117 firms; 57 firms have a Combined CEO–Chair structure, while 60 firms have a Separate CEO–Chair structure. Note that leadership structure does not appear to be related to firm size. Specifically, for small firms (i.e., firms where total assets are lower than the median value for the entire sample of firms), 27 out of 56 companies that disclose this information have a Combined CEO–Chair structure (the information is not available for five firms). For large firms, 30 out of 61 firms have a Combined CEO–Chair structure.

Panel D presents the statistics relating to large institutional shareholders. A total of 60 firms in our sample have an institutional shareholder (i.e., a shareholder having at least 10% of the voting rights) and 62 firms do not have an institutional shareholder. The presence or absence of an institutional shareholder does not seem to be related to firm size. Panel E provides information relating to the number of directors on the board and the proportion of outsiders on the board.¹¹ The boards of directors for firms in our sample vary in size from 5 to 21 members and have an average of 10.3 directors (median of 10). The number of outside directors varies between 2 and 17, with an average of 7.6 (median of 7). Panel F presents statistics about director ownership.

The information content of bank credit agreements is measured by the change in a firm's market value at the time of the announcement (using an event-study methodology). As in Aintablian and Roberts (2000), Andre et al. (2001), Brown and Warner (1980), and James (1987), among others, excess returns are calculated using the

¹¹ A member of the board of directors is considered to be an outsider if she is not employed by the company (otherwise she is treated as an insider). This definition is not perfect since there are affiliated outside board members who are not necessarily independent (i.e., grey directors). To compensate, in our analysis we use 55% as the cutoff point, rather than 50%, in determining whether a board is dominated by outsiders.

Table 2
Correlation matrix and Pearson-correlation coefficients

	LOC	NR	BANK_NUM	CEO_CHAIR	OUT_DIR	DIR_OWN	INTAUD	LEVERAGE	INSTIT	INSTIT_CEO	DIR	DIR ^{dv}	LOAN
LOC	1.000	0.085 (0.35)	-0.014 (0.88)	-0.091 (0.33)	-0.082 (0.37)	-0.105 (0.26)	0.117 (0.20)	0.001 (0.99)	0.086 (0.34)	-0.123 (0.19)	-0.016 (0.86)	0.055 (0.55)	-0.019 (0.84)
NR		1.000	0.099 (0.28)	-0.003 (0.98)	-0.039 (0.67)	0.062 (0.50)	0.125 (0.17)	0.311 (0.00)	-0.041 (0.66)	-0.036 (0.70)	-0.034 (0.71)	0.014 (0.88)	-0.127 (0.18)
BANK_NUM			1.000	0.001 (0.99)	0.133 (0.14)	0.027 (0.77)	0.121 (0.18)	0.275 (0.00)	-0.011 (0.90)	-0.049 (0.60)	0.328 (0.00)	0.326 (0.00)	-0.175 (0.07)
CEO_CHAIR				1.000	-0.110 (0.24)	0.011 (0.91)	-0.038 (0.69)	0.040 (0.67)	0.025 (0.79)	0.575 (0.00)	0.129 (0.17)	0.115 (0.22)	-0.040 (0.68)
OUT_DIR					1.000	-0.108 (0.24)	0.086 (0.35)	0.065 (0.48)	0.106 (0.25)	-0.068 (0.46)	0.219 (0.02)	0.141 (0.12)	0.022 (0.82)
DIR_OWN						1.000	0.000 (0.99)	0.195 (0.03)	-0.362 (0.00)	0.257 (0.01)	0.026 (0.78)	-0.055 (0.55)	-0.058 (0.55)
INTAUD							1.000	0.299 (0.00)	-0.005 (0.95)	-0.094 (0.31)	0.160 (0.08)	0.132 (0.15)	-0.217 (0.02)
LEVERAGE								1.000	0.014 (0.88)	0.013 (0.89)	0.310 (0.00)	0.302 (0.00)	-0.424 (0.00)
INSTIT									1.000	-0.556 (0.00)	0.180 (0.05)	0.264 (0.00)	-0.032 (0.74)
INSTIT_CEO										1.000	0.009 (0.92)	-0.022 (0.81)	0.018 (0.85)
DIR											1.000	0.824 (0.00)	-0.377 (0.00)
DIR ^{dv}												1.000	-0.338 (0.00)
LOAN													1.000

LOC = a dummy variable that takes the value of "one" when a firm receives a term loan and takes the value of "zero" otherwise; NR = a dummy variable that takes the value of "one" for a revised loan and takes the value of "zero" for a new loan; BANK_NUM = a dummy variable that takes the value of "one" when the loan is provided by a single bank and takes the value of "zero" when the loan is provided by multiple banks (or when the number of banks cannot be determined); CEO_CHAIR = a dummy variable that takes the value of "one" when the firm has a Combined CEO-Chair structure and "zero" otherwise; OUT_DIR = a dummy that takes value of "one" if the ratio of the number of outside directors to the total number of directors on the board is greater than 55% and "zero" otherwise; DIR_OWN = the percentage of the voting shares owned by directors; INTAUD = a dummy variable that takes the value of "one" if the audit firm is an international audit firm and "zero" otherwise; LEVERAGE = the financial leverage of a firm defined as total liabilities divided by total assets; INSTIT = a dummy variable that takes the value of "one" if there is an institutional shareholder and "zero" otherwise; INSTIT_CEO = a dummy variable that takes the value of "one" if a firm with a Combined CEO-Chair has no institutional shareholder and "zero" otherwise; DIR = the number of directors on the board of directors; DIR^{dv} = a dummy variable equal to "one" if the number of directors of the board exceeds nine and "zero" otherwise; and LOAN = the amount of the loan divided by the sum of the total value of assets prior to receiving the loan plus the value of the loan.

market model, and the two-day event window is defined as the day of the announcement in the *Globe & Mail* ($t=0$) and the previous day ($t=-1$). The parameters of the market model on daily returns are estimated over the period $t=-170$ to $t=-21$ prior to the announcement.¹² Pearson-correlation coefficients for the variables used in the tests are presented in Table 2.

4. Results

4.1. The market reaction to the disclosure of bank credit agreements

Table 3 presents the average announcement excess return at the disclosure of bank credit agreements. As indicated in Panel A, we observe a positive market reaction to the disclosure of bank credit agreements for the sample overall (average announcement excess return of 2.19 and a z -statistic of 3.04), which is consistent with the extant literature (see, for example, Aintablian & Roberts, 2000; James, 1987). This result is consistent with the view that banks play an important role in corporate governance through their screening and monitoring activities.

The market reaction is positive and significant, at a 1% level, when a firm receives a term loan but it is not significant when it receives a line of credit. However, the null hypothesis that the two market reactions are the same cannot be rejected at conventional levels (t -statistic of 0.72). This can be explained by the lower level of bank commitment associated with lines of credit (caused by the introduction of legal capital adequacy requirements).¹³

For new credit agreements, the average announcement excess return is 1.97%, which is statistically different from zero at a level of 1% (z -statistic of 2.74). For revised credit agreements, the average excess return is 2.69% and is not statistically significant from zero (z -statistic of 0.84). The null hypothesis that the two market reactions are the same cannot be rejected at conventional levels (t -statistic of 0.03). Using U.S. data, Lummer and McConnell (1989) obtain an excess return of -0.01% for new credit agreements while Best and Zhang (1993) obtain an excess return of 0.26% .¹⁴ We find that the market reaction is positive and significant at a 1% level when the credit agreement is provided by a single bank, and it is significant at a 10% level when it is issued by multiple banks. The null hypothesis that the market reactions are the same cannot be rejected at conventional levels (t -statistic of 1.05).

¹² To correct for thin-trading problems, missing returns are calculated using the bid and ask prices disclosed in the *TSE Western* database. More precisely, the price used to calculate a daily return is assumed to be the mean of the bid and ask prices when no transaction is recorded for that day. However, when a significant proportion of the returns were missing, the firm was eliminated from the sample (13 firms).

¹³ In their study, Andre et al. (2001) argue that since banks can eliminate the impact of lines of credit in the calculation of capital-requirement ratios by reducing their level of commitment, the informativeness of the disclosure of lines of credit is reduced. Their empirical results support this argument.

¹⁴ Slovin et al. (1992) observe a positive market reaction to the disclosure of new and revised credit agreements for small firms but not for large firms. In our sample, the null hypothesis that the two reactions are the same cannot be rejected even after controlling for size.

Table 3

Average announcement excess returns

	Number of observations	Announcement period excess returns (%)	z-statistic
<i>Panel A: Characteristics of bank credit agreements and firm size</i>			
Full sample	122	2.19	3.04***
Lines of credit	50	1.33	0.68
Term loans	57	2.47	2.34***
Term loans and lines of credit	15	3.98	2.86***
New credit agreements ^a	92	1.97	2.74***
Revised credit agreements	27	2.69	0.84
Credit agreements provided by a single bank	40	3.44	2.60***
Credit agreements provided by multiple banks	82	1.58	1.89*
<i>Panel B: Leadership structures</i>			
Separate CEO–Chair	60	3.54	3.50***
Combined CEO–Chair	57	0.55	0.65

^a Three announcements contained both a revised and new credit agreement.

* Significant at 0.10 level.

*** Significant at 0.01 level.

Panel B of Table 3 examines the market reaction to the disclosure of bank credit agreements while controlling for firm-leadership structure. We observe a positive significant market reaction for firms with a Separate CEO–Chair structure (average announcement excess return of 3.54 and a z-statistic of 3.50), but not for firms with a Combined CEO–Chair structure (average announcement excess return of 0.55 and a z-statistic of 0.65). The difference between the two market reactions is significant at 5% (*t*-statistic of 2.02). This result suggests that firms with a Separate CEO–Chair structure can obtain a higher total value from a debt contract than firms with a Combined CEO–Chair structure. In the following section, we will test whether the higher value results from banks' monitoring activities, effective use of the loan, or both.

4.2. Monitoring activities and the effective use of bank loans

The results of Best and Zhang (1993) and Slovin et al. (1992) imply that bank monitoring is valuable when the market believes that firms are not already well-monitored. The leadership structure of a firm can be viewed as an important component of internal monitoring controls. If a leadership structure is viewed as strong, the market reaction to the disclosure of bank credit agreements should not depend on the presence of other monitoring devices. We use both the presence of a large proportion of outsiders on the board of directors (Hypothesis 1) and the presence of an institutional shareholder (Hypothesis 2) as alternative monitoring devices.

Panel A of Table 4 presents results when controlling for the proportion of outsiders on the board (Hypothesis 1). The threshold percentage of outside directors on the board used to define whether there are a majority of outsiders is 55%. Byrd and Hickman (1992) use 50% as the cutoff point in their study but exclude affiliated outsiders from the outside

Table 4
Institutional shareholders and the board of directors

	Number of observations ^a	Announcement period excess returns (%)	z-statistic
<i>Panel A: Proportion of outside directors on the board</i>			
Full sample			
Less than 55% of the board	19	2.76	2.58***
At least 55% of the board	103	2.08	1.67*
Separate CEO–Chair			
Percentage of outside directors < 0.55	6	7.57	2.05**
Percentage of outside directors ≥ 0.55	54	3.09	3.00***
Combined CEO–Chair			
Percentage of outside directors < 0.55	10	0.62	0.88
Percentage of outside directors ≥ 0.55	47	0.53	0.31
<i>Panel B: Institutional shareholder (IS)</i>			
Full sample			
Presence of an IS	60	1.07	1.13
Absence of an IS	62	3.27	3.15**
Separate CEO–Chair			
Presence of an IS	29	3.26	2.80***
Absence of an IS	31	3.80	2.16**
Combined CEO–Chair			
Presence of an IS	29	−1.80	−1.56
Absence of an IS	28	2.99	2.51**
<i>Panel C: Size of the board of directors</i>			
Full sample			
Number of directors > 9	65	0.48	0.70
Number of directors ≤ 9	57	4.13	9.69***
Separate CEO–Chair			
Number of directors > 9	30	0.90	1.18
Number of directors ≤ 9	30	6.19	3.77***
Combined CEO–Chair			
Number of directors > 9	30	0.90	1.18
Number of directors ≤ 9	30	6.19	3.77***
Combined CEO–Chair			
Number of directors > 9	35	0.13	−0.14
Number of directors ≤ 9	22	1.22	1.22

^a The total number of observations is 122. However, some information was not available in the disclosure of the bank credit agreements or in the proxy statements, thus the final sample is smaller.

* Significant at 0.10 level.

** Significant at 0.05 level.

*** Significant at 0.01 level.

director category. In our sample, we do not have access to information that would allow us to identify affiliated outsiders. To allow for the coarseness of our measure, 55% is used as the threshold percentage.¹⁵

¹⁵ The results presented in Panel A of Table 4 are robust to the cutoff point chosen. We obtain similar results for cutoff points between 55% and 75%.

The first two rows of Panel A in Table 4 do not take into account leadership structure. In both cases, the market reaction is positive and significant. The null hypothesis that the two reactions are the same cannot be rejected at conventional levels (t -statistic of 0.34). Therefore, the results of the univariate analysis do not support the view that firms with a larger proportion of outside directors are better monitored. For firms with a Separate CEO–Chair structure, the market reaction is significant at the 5% level for firms with a low percentage of outside directors (average announcement excess return of 7.57 and z -statistic of 2.05) and is significant at the 1% level for firms with a large percentage of outside directors (average announcement excess return of 3.09 and z -statistic of 3.00). The null hypothesis that the two reactions are the same cannot be rejected (t -statistic of 0.83). For firms with a Combined CEO–Chair structure, the market reaction is positive but insignificant in both cases.

Panel B of Table 4 examines the market reaction after taking into account the presence of an institutional shareholder (Hypothesis 2). The first two rows present the market reaction without controlling for leadership structure. As expected, the market reaction is positive and significant at a 1% level when there is no institutional shareholder (average announcement excess return of 3.27% and z -statistic of 3.15). The market reaction is positive but not significant when there is an institutional shareholder (average announcement excess return of 1.07 and z -statistic of 1.13). While the results are consistent with expectations, the null hypothesis that the market reactions are the same cannot be rejected at conventional levels (t -statistic of 1.51).

When a firm has a Separate CEO–Chair the market reaction is positive and significant regardless of the presence (or absence) of an institutional shareholder (average announcement excess return of 3.80 and z -statistic of 2.16 when there is no institutional shareholder and average announcement excess return of 3.26 and z -statistic of 2.80 otherwise). Furthermore, the null hypothesis that the two reactions are the same cannot be rejected at conventional levels (t -statistic of 0.25).

When a firm has a Combined CEO–Chair, the market reaction depends on the presence of an institutional shareholder. When there is an institutional shareholder, the market reaction is negative but insignificant (average announcement excess return of -1.80 and z -statistic of -1.56). However, when there is no institutional shareholder the market reaction is positive and significant at a 1% level (average announcement excess return of 2.99 and z -statistic of 2.51). The null hypothesis that the market reactions are the same is rejected at a 1% level (t -statistic of 2.65). From Hypothesis 2, these results suggest that the market perceives firms with a Separate CEO–Chair structure as having better internal control than firms with a Combined CEO–Structure.

Another possible explanation for the stronger market reaction for firms with a Separate CEO–Chair structure is that they employ loans more effectively. If this is the case, the market reaction should be stronger when the board of directors is smaller (Hypothesis 3). Panel C presents the results after controlling for the size of the board. The threshold number used in the test for dividing the sample into large and small boards is nine.¹⁶ The first two rows

¹⁶ We use other threshold numbers such as 8, 10, 11, and 12 and obtain similar results. That is, for all of these threshold numbers, the null hypothesis that the two market reactions are the same can be rejected for the full sample and for firms having a Separate CEO–Chair structure but not for firms having a Combined CEO–Chair structure.

present the market reaction before controlling for leadership structure, and indicate that the market reaction is positive and significant when the board is small (average announcement excess return of 4.13 and *z*-statistic of 3.69) and insignificant otherwise (average announcement excess return of 0.48 and *z*-statistic of 0.70). The null hypothesis that the two market reactions are the same is rejected at a 5% level (*t*-statistic of 2.45).

For firms with a Separate CEO–Chair, the market reaction is positive and significant at a 1% level when the board is small, and positive but insignificant when the board is large (average announcement excess return of 6.17 and 0.90, respectively). The null hypothesis that the two reactions are the same is rejected at the 5% level (*t*-statistic of 2.47). For firms with a Combined CEO–Chair, the market reaction is insignificant in both cases and the null hypothesis that they are the same cannot be rejected at conventional levels (*t*-statistic of 0.55). These results are consistent with Hypothesis 3.

Overall, the results of the univariate analysis indicate that firms with a Separate CEO–Chair structure have better control and are more effective in using loans than firms with a Combined CEO–Chair structure. The results are also consistent with the evidence provided in Pi and Timme (1993) which indicates that firms with a Separate CEO–Chair structure are more effective.

We perform an additional analysis to take into account the findings of Brickley et al. (1997). They provide evidence that a number of firms use the Separate CEO–Chair structure as a temporary leadership structure when a new CEO is hired, and both titles are later combined after some time has elapsed. To eliminate the impact of a transitory leadership structure, we replicate the tests performed in Tables 3 and 4 using only firms having the same leadership structure over a 3-year period (24 firms were excluded).¹⁷

The results (not reported) are essentially the same for all tests involving leadership structure.

4.3. Multivariate analysis

In this section, we perform multivariate analyses to examine the relationship between the market reaction to the disclosure of bank credit agreements and firm leadership structure in a more controlled environment. We control for the type of agreement (term loan vs. line of credit, revised vs. new loan), the concentration of borrowing (single vs. multiple banks), the features of the board of directors (proportion of outside directors, director ownership, size of the board and leadership structure), the type of auditor (international audit firm vs. national audit firm), the presence of an institutional shareholder, and firm leverage. We estimate the following model using ordinary least-squares (OLS):¹⁸

$$PE_i = \alpha + \beta_1 LOC_i + \beta_2 NR_i + \beta_3 BANK_NUM_i + \beta_4 CEO_CHAIR_i + \beta_5 OUT_DIR_i + \beta_6 DIR_OWN_i + \beta_7 INTAUD_i + \beta_8 LEVERAGE_i + \beta_9 INSTIT_i + \beta_{10} DIR_i + \varepsilon_i$$

¹⁷ The time period is limited due to the difficulty in obtaining proxy statements for some sample firms.

¹⁸ Lummer and McConnell (1989) and Johnson (1996) control for heteroscedasticity in cross-sectional stock returns by using a weighted least-squares regression with the inverse of the relevant standard-prediction errors as weights. However, tests on our sample of Canadian data indicate that heteroscedasticity is not present, thus we report results using OLS.

where: PE=the 2-day excess return; LOC=a dummy variable that takes the value of “one” when a firm receives a term loan and takes the value of “zero” otherwise; NR=a dummy variable that takes the value of “one” for a revised loan and takes the value of “zero” for a new loan; BANK_NUM=a dummy variable that takes the value of “one” when the loan is provided by a single bank and takes the value of “zero” when the loan is provided by multiple banks (or when the number of banks cannot be determined); CEO_CHAIR=a dummy variable that takes the value of “one” when the firm has a Combined CEO–Chair structure and “zero” when the firm has a Separate CEO–Chair structure; OUT_DIR=a dummy variable that takes value of “one” if the ratio of the number of outside directors to the total number of directors on the board is greater than 55%, and takes a value of “zero” otherwise; DIR_OWN=the natural logarithm of the percentage of the voting shares owned by directors; INTAUD=a dummy variable that takes the value of “one” if the audit firm is an international audit firm, and takes a value of “zero” otherwise; LEVERAGE=the financial leverage of the firm defined as total liabilities over total assets; INSTIT=a dummy variable that takes the value of “one” if there is an institutional shareholder, and takes a value of “zero” otherwise; DIR=the number of directors on the board of directors; and ε_i =a noise term.

The predicted sign of the variables are presented in Column A of Table 5. According to Andre et al. (2001), the announcement of term loans is more informative than the announcement of lines of credit after 1988 due to changes in capital-adequacy requirements. Since the majority of the announcements included in our sample are disclosed after 1988, the sign of the variable LOC is predicted to be positive.

Based on the results of the univariate analysis (Table 3), we predict a negative sign for the variable NR. Petersen and Rajan (1994) provide evidence that concentration of borrowing is viewed as good news. Preece and Mullineaux (1996) also provide evidence that the market reaction is a declining function of the number of lending banks. As a result, the sign of BANK_NUM is predicted to be positive.¹⁹ From the results presented in the univariate analysis, the sign of CEO_CHAIR should be negative. That is, the market reaction is stronger at the disclosure of bank agreements for firms with a Separate CEO–Chair structure.

From previous empirical evidence (for example, Byrd & Hickman, 1992; Rosenstein & Wyatt, 1990) the sign of OUT_DIR is predicted to be negative; as the proportion of outside directors increases, the impact of banks’ monitoring activities is lower. We have no *ex ante* prediction for the sign on DIR_OWN since prior literature provides mixed results. Morck, Shleifer, and Vishny (1988) provide evidence that firm value first rises with increases in director ownership and then falls.²⁰

¹⁹ However, Rajan (1992) claims that the information acquired by a bank can create an “information monopoly” or hold-up problems in that it is costly for the borrower to switch lenders. Houston and James (1996) support Rajan’s claim by providing evidence that firms borrowing from multiple banks undertake more investment opportunities than firms borrowing from a single bank since, in the latter case, the firm does not have incentives to invest in new projects given that the bank uses its information monopoly to capture most of the profits. If this is the case, the sign of NUMBK could be negative.

²⁰ We also distinguish between the ownership amounts of inside and outside directors. This distinction does not alter the reported results.

Table 5
Multivariate analysis

Independent variables	(A)	(B)	(C)	(D)	(E)	(F)	(G)
	Sign	Results	t-statistic	Results	t-statistic	Results	t-statistic
Intercept	?	0.0765	2.10**	0.0380	1.07	−0.0015	−0.04
LOC	+	0.0163	1.03	0.0196	1.27	0.0098	0.67
NR	−	0.0052	0.26	0.0064	0.32	−0.0186	−0.96
BANK_NUM	+	−0.0280	−1.56	−0.0175	−1.00	−0.0188	−1.14
CEO_CHAIR	−	−0.0317	−1.99**	−0.0552	−2.92***	−0.0460	−2.57**
OUT_DIR	−	−0.0108	−0.44	−0.0189	−0.80	0.0067	0.28
DIR_OWN	?	−0.0019	−0.54	−0.0033	−0.97	−0.0012	−0.38
INTAUD	−	−0.0202	−0.69	−0.0119	−0.42	−0.0055	−0.21
LEVERAGE	+	0.0607	1.82*	0.0664	2.06**	0.0698	2.23**
INSTIT	−	−0.0309	−1.82*				
INSTIT_CEO	+			0.0528	2.29**	0.0480	2.25**
DIR	−	−0.0027	−1.14				
DIR ^{dv}	−			−0.0443	−2.43**	−0.0313	−1.78*
LOAN	+					0.0440	1.18
Number of observations			110		110		101
Adjusted R ²			0.057		0.107		0.095
F value			1.66		2.31		1.95
Pr>F			0.101		0.018		0.042

$$PE_i = \alpha + \beta_1 LOC_i + \beta_2 NR_i + \beta_3 BANK_NUM_i + \beta_4 CEO_CHAIR_i + \beta_5 OUT_DIR_i + \beta_6 DIR_OWN_i + \beta_7 INTAUD_i + \beta_8 LEVERAGE_i + \beta_9 INSTIT_i + \beta_{10} DIR_i + \varepsilon_i$$

where: PE=the two-day excess return; LOC=a dummy variable that takes the value of one when a firm receives a term loan and takes the value of zero otherwise; NR=a dummy variable that takes the value of one for a revised loan and takes the value of zero for a new loan; BANK_NUM=a dummy variable that takes the value of “one” when the loan is provided by a single bank and takes the value of “zero” when the loan is provided by multiple banks (or when the number of banks cannot be determined); CEO_CHAIR=a dummy variable that takes the value of one when the firm has a Combined CEO–Chair structure and zero when the firm has a Separate CEO–Chair structure; OUT_DIR=a dummy variable that takes value of one if the ratio of the number of outside directors to the total number of directors on the board is greater than 55% and zero otherwise; DIR_OWN=the natural logarithm of the percentage of the voting shares owned by the directors; INTAUD=a dummy variable that takes the value of one if the audit firm is an international audit firm and zero otherwise; LEVERAGE=the financial leverage of a firm defined as total liabilities divided by total assets; INSTIT=a dummy variable that takes the value of one if there is an institutional shareholder and zero otherwise; INSTIT_CEO=a dummy variable that takes the value of one if a firm with a Combined CEO–Chair has no institutional shareholder and zero otherwise; DIR=the number of directors on the board of directors; DIR^{dv}=a dummy variable equal to one if the number of directors of the board exceeds nine and equal to zero otherwise; and LOAN=the amount of the loan divided by the sum of the total value of assets prior to receiving the loan plus the value of the loan.

* Significant at 0.10 level.
** Significant at 0.05 level.
*** Significant at 0.01 level.

Yermack (1996) observes that firm value is significantly higher when officers and directors have greater ownership, but this ownership variable has an ambiguous relationship with contemporaneous measures of accounting operating performance.

The sign of INTAUD is expected to be negative since international audit firms are viewed as being of higher quality than domestic audit firms and this reduces the impact of bank monitoring activities (Titman & Trueman, 1986). The sign on LEVERAGE is expected to be positive since additional debt signals the existence of positive net present-value projects/opportunities for the firm (Johnson, 1996). The sign of INSTIT is expected to be negative since, in the absence of an institutional shareholder, banks' monitoring activities are more valuable. Finally, the sign of DIR is expected to be negative since smaller boards are perceived as being more efficient (Yermack, 1996).²¹

Columns B and C of Table 5 present the results of the regression.²² The adjusted R^2 of the model is 0.06 and three variables are significant. The coefficient on the variable CEO_CHAIR is negative and significant at the 5% level (as expected). This result is consistent with the univariate analysis. The coefficient on LEVERAGE is positive and significant at the 10% level, and the coefficient on INSTIT is negative and significant at the 10% level as predicted.

The specification of the first model is somewhat weak (F -value of 1.66). To improve the fit of the model and to relate more closely the multivariate analysis to the univariate analysis, we redefined some variables. First, we use a dummy variable equal to "one" when the size of the board of directors exceeds nine and "zero" otherwise (DIR^{dv}). Consistent with the univariate analysis, we expect a negative sign on this variable. Second, we define a dummy variable equal to "one" when a firm with a Combined CEO–Chair has no institutional shareholder and "zero" otherwise (INSTIT_CEO). Given that the bank's monitoring activities are expected to be more valuable when a firm has a Combined CEO–Chair and no institutional shareholder, we expect a positive sign on this variable.

The results of the modified model are presented in Columns D and E of Table 5. The fit of the model has improved (F -value of 2.31 and adjusted R^2 of 0.11). As in the previous model, the variable CEO_CHAIR is negative and significant, but the significance level has improved to a 1% level. The variable DIR^{dv} is negative, as expected, and significant at a 5% level, while INSTIT_CEO is positive and significant at a 5% level.

Lastly, we introduce the relative loan amount (LOAN) into the regression. LOAN is defined as the amount of financing provided by the bank divided by the sum of the total value of assets in the fiscal year prior to the loan plus the amount of financing. The sign on this variable is expected to be positive since the loan amount signals the bank's willingness to finance the firm's activities. By introducing this variable, we lose nine observations

²¹ Because there is a high correlation between firm size and board size, we only include the variable DIR in the regression.

²² There are a total of 110 observations used in the multivariate analysis. We eliminated three announcements involving both a new and a revised credit agreement, five observations where the leadership structure could not be determined, and four observations where director-ownership information was not available.

since the announcements in the financial press do not always provide this information. The results of this final version of the model are presented in Columns F and G of Table 5. The adjusted R^2 is 0.10 while the F -value declines slightly to 1.95. Overall, the inclusion of the relative loan amount (LOAN) does not substantively alter the results of the model from those reported in Columns D and E of Table 5.²³

In summary, the CEO–Chair variable is negative and at least significant at a 5% level in all three iterations of the model. This indicates that leadership structure has a significant impact on corporate control even when we control for the presence of other monitoring devices (the presence of an institutional shareholder and the presence of outside directors on the board) and for the efficiency of the board (the size of the board). Combining this observation with the results from the univariate analysis, we argue that the Separate CEO–Chair structure is more effective than the combined CEO–Chair structure with respect to the use of loans.

5. Conclusion

Our results support two distinct valuation/future-performance implications of new bank debt contracts. First, when a firm is organized in a low-agency-cost form (i.e., separation of CEO and Chair positions) new debt contracts are associated with an increase in firm value when measured by debt-announcement-period returns. This is consistent with a value-adding performance role for such an organizational form. Second, for firms organized in the higher-agency-cost combined CEO–Chair form an increase in firm value is observed only for firms lacking institutional ownership monitoring. This suggests that the valuation implications and, by extension, the agency-monitoring impact of institutional-equity ownership and bank debt ownership are similar for such firms. These findings are inconsistent with any sort of positive efficiency-gain role for combined CEO–Chair structures in debt-issuance settings.

We are interested in examining the impact of leadership structure on the ability of firms to generate value from loans. The use of an event-study methodology enables us to eliminate the impact of confounding factors of firm performance, and hence, the difficulties in relating performance measures to leadership structure. Another advantage of our approach is that by narrowing the focus to only consider the impact of firm-leadership structure on the use of debt, several of the costs associated with a Separate CEO–Chair structure (as raised in Brickley et al., 1997) become irrelevant in our analysis.

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²³ As robustness tests, we include the nationality of the lending banks as a control variable and we exclude the observations for firms having a change in leadership structure in the 3-year period before the announcement. The main conclusions are not affected by these alternative specifications.

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Developing countries converging with developed-country accounting standards: Evidence from South Africa and Mexico

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Abstract

I examine the usefulness (relevance and timeliness) of earnings announcements in two emerging markets, the Johannesburg Stock Exchange (JSE) and the Bolsa Mexicana de Valores Stock Exchange (BMV). A weighted least-squares regression is used to test the association of book values of earnings and equity with firm market value. I find that, on JSE and BMV, earnings and/or book value of equity are value relevant in explaining stock prices. I also find that this association is greater in 2000 as compared to 1998 on the BMV. Regarding timeliness, I find that earnings announcements are accompanied by unusually different returns on JSE, but not on BMV. Market infrastructure, specifically insider-trading rules, may explain BMV results. I suggest that accounting and market infrastructure interact and that such interaction is valuable input to the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) in their deliberations regarding one set of accounting regulations for all countries.

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Keywords: Johannesburg Stock Exchange; Bolsa Mexicana de Valores Stock Exchange; Value relevance; Information content

1. Introduction

Worldwide convergence of accounting standards has received much attention in academic and professional accounting literature. A major issue is whether one set of

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accounting standards can be useful for both developed and developing countries (Amenkhienan, 1986; Falk, 1994; FASB, 1999; Gray & Roberts, 1991; Hove, 1989; Samuels & Piper, 1985). Some contend that the differences in culture and business environment between developed and developing countries are so vast that no one set of standards can be useful to both kinds of countries. Others argue that, if international accounting standards are flexible enough to allow for differences in culture and business practices across nations, then one set of accounting regulations may be useful to developed and developing countries alike. The objective of this study is to assess whether two developing countries (South Africa and Mexico) that are moving toward convergence with developed-country accounting standards (International Accounting Standards and/or U.S. GAAP) find developed-country standards useful. Here, usefulness is defined as having value relevance and timeliness.

The International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) publish frameworks to which they refer when promulgating accounting standards. Both frameworks define useful accounting reporting as information that possesses the qualitative characteristics of relevance and reliability to market participants worldwide. The frameworks also state that financial reporting should be timely. In this study, timeliness is assumed when there are abnormal share-price returns within a 3-day window of earnings announcements.

I focus on whether developing countries' firm-specific accounting earnings and equity, based on standards that are converging with IFRS and U.S. GAAP, provide value relevant information as measured by the book values' response coefficients. Similar to extant accounting research, I use the R^2 association test of book values (earnings and equity) with market value of equity to suggest whether, over time, convergence with developed-country accounting standards produces persistent or increasing value relevance, R^2 , in developing countries (see Ohlson, 1995).

South Africa (specifically the Johannesburg Stock Exchange or JSE) and Mexico (the Bolsa Mexicana de Valores Stock Exchange or BMV) provide rich settings for testing the value relevance and information content of developing countries' accounting standards. Johannesburg is the largest emerging stock market that allows its domestic listers to comply with IFRS.¹ JSE allows its domestic listers to use either South African GAAP or International Accounting Standards (IAS) (Andersen et al., 2001; IASC, 2000). JSE has been adopting IAS with a lag² as early as 1995³ and in 2005 required all domestic listers to comply with IFRS. Mexico is the largest emerging stock market converging with U.S. GAAP as well as IAS. As a result of the North American Free Trade Agreement (NAFTA), Mexico, Canada and the United States have taken steps to converge accounting standards

¹ The two largest emerging stock exchanges are China and Taiwan, neither of which permits IFRS for its domestic listers.

² "With a lag" means that, after an IAS or IFRS was promulgated by the IASC or IASB, the South Africa Institute of Chartered Accountants would review the standard before adopting it as part of South African GAAP.

³ Jutta Service stated that South African GAAP was developed to be in line with IAS as early as 1995 when publishing the background on "Net profit or loss for the period, fundamental errors and changes in accounting policies." (See Everingham & Watson, 1999. *Generally accepted accounting practice: A South African viewpoint*. The Republic of South Africa: Jutta and Co. LTD, p. 48).

(Agami & Cascini, 1995). The Mexican Institute of Public Accountants also requires compliance with IFRS on a supplementary basis when Mexican GAAP is silent (Andersen et al., 2001). South Africa converged with 11 IAS and Mexico converged with five Statements of Financial Accounting Standards (SFAS), one Accounting Principles Board (APB) Opinion, and four IAS between 1998 and 2000 (see Appendix A for more details). My study is unique because prior studies on the usefulness of IAS have focused on Asian or German countries (Bartov, Goldberg, & Kim, 2004; Eccher & Healy, 2003; Hung & Subramanyam, 2004).

The differences in financial-reporting practices between nations make it difficult to compare and interpret financial statements of firms listed in different countries. Similarly, the costs of providing financial reports prepared in accordance with the host country's reporting standards are nontrivial (Biddle & Saudagaran, 1991) and can influence a multinational firm's choice of foreign-listing location (Saudagaran & Biddle, 1995). These costs, as well as the pressure of exchanges in competition for foreign listings, have led to demands for international convergence of accounting standards.

While convergence of accounting standards may make foreign capital more accessible to large firms, extant accounting literature suggests that standards promulgated for developed countries may not be useful for market participants in emerging markets. U.S. GAAP and IFRS were developed and heavily influenced by developed countries for market participants on developed stock exchanges. Nair (1982) argues that British and U.S. financial reports are prepared for investors in organized capital markets, whereas Latin American and African financial reports are prepared for creditors, owner-managers, and tax collectors. Hence, accounting standards and financial reports with the investor as the intended subject may not be useful for market participants in Latin America, Asia, or Africa.

Like Barth, Beaver, and Landsman (2001), I believe that the value-relevance model provides insight to the IASB and FASB regarding relevance and reliability. Information is relevant when it faithfully represents that which it purports to represent without bias. The IASB (2004), IASC (1989), and FASB (1980) define relevance as input that helps users evaluate the past, present, or future of an entity. The information should assist users in explaining stock-price movements as well as other factors such as dividend and wage payments, future financial position, and the ability of a firm to pay its obligations when due. I understand that financial reports are supposed to be relevant and reliable for a number of applications, such as debt and management compensation contracts. My assumption, like that of Barth et al. (2001), is that the primary focus of IASB and FASB standard setting is equity investment decisions. Relevance and reliability imply that there should be a significant association between book value of earnings and equity with firm-specific stock market returns.

Some empirical evidence suggests that the market may not respond immediately to public information when it is disseminated (see Bhattacharya, Daouk, Jorgenson, & Kehr, 2000; Holthausen & Watts, 2000). That is "information may be highly relevant and reliable but of little use to those who have had to make decisions in the interim" (IASB, 1989, paragraph 43).

Unlike the United States, many developing countries have heavily concentrated ownerships in their financial markets. Shareholders of these corporations own large blocks

of shares and often times are active in corporate governance (La Porta, Lopez-de-Silanes, Shleifer, & Vishney, 1998). These large shareholders, then, may possess private information that is unknown to others until a public announcement is made. Extant literature suggests that both JSE and BMV have historically had low market integrity. Market integrity is defined as the country-specific legal rules related to shareholder rights and insider trading. In the past, family-controlled companies have dominated the Mexican market (La Porta, Lopez-de-Silanes, & Shleifer, 1999) and institutional conglomerates have dominated the South African market, although recently this has diminished (Choi & Meek, 2005). If a market is dominated by insiders, earnings announcements may be fully anticipated. In such a market, earnings announcements will bring no surprises and thus no significant changes in stock prices because insiders will have incorporated their superior information through trades prior to the announcement date.

I test for timeliness using an information-content model. If earnings announcements contain timely information, then market participants should respond in a timely manner. I study the market's reaction to earnings within a 3-day event window. If there is a significant difference in abnormal returns at the event period, then I assume that earnings are reported in a timely fashion. That is, I test whether good (bad) news is associated with positive (negative) abnormal returns where positive (negative) returns are defined as earnings higher (lower) than the mean analysts' earnings forecast.

First, I provide evidence on whether the IASC's and FASB's qualitative characteristics of financial reports—relevance and reliability—are experienced in two developing countries' capital markets. I find that the JSE's and BMV's reported earnings and/or book value of equity are significant in explaining market prices. Further, convergence to IAS and U.S. GAAP reporting standards have resulted in increased explanatory power between accounting earnings and book value of equity with market prices on the BMV. I conclude that developing-country GAAP converging with IAS and U.S. GAAP can produce relevant and reliable information in developing countries. Because these qualitative characteristics are considered by the IASB and FASB when selecting among alternative accounting treatments, my evidence shows that it may be possible to develop one set of accounting standards that will be useful for both developed and developing countries.

A second question addressed is whether financial reports are disseminated in a timely manner. Saudagaran and Diga (1997, p. 48) suggest that "the underlying infrastructure of emerging capital markets is sufficiently different from those in developed markets to affect the efficiency by which information is processed." Moreover, the relevance and reliability of financial reports in emerging markets may depend on market-integrity factors, such as the presence of insider-information trading and degree of shareholder rights. I find that earnings announcements are accompanied by significantly different returns on JSE, but not on BMV. These findings infer that the FASB and IASB should be concerned about the interaction of relevance and timeliness of financial reporting with capital-market infrastructure for equity investors in developing countries.

The remainder of this paper is presented as follows. Section 2 presents the accounting standards and investor-protection laws in South Africa and Mexico. Section 3 describes the hypotheses and method of analysis. Section 4 explains the sample-selection process and the empirical results of the hypotheses tested. Finally, in Section 5, I provide a summary and suggestion for future research.

2. Background

South Africa and Mexico are developing countries converging with developed-country GAAP, specifically IFRS and U.S. GAAP. The following section provides backgrounds on South Africa's and Mexico's accounting standards and capital-market development and infrastructure. IFRS has a strong Western-world or developed-country influence, as both Great Britain and the United States have played leading and dominant roles in the promulgation of IFRS. Additionally, U.S. GAAP is that of a developed country: America.

2.1. Accounting standards

South Africa was settled by Europeans in 1652 and became a British Colony. By 1828, English was the only official language. In 1910, South Africa was granted colonial self-governance and became the independent *Union of South Africa*, although it remained a colony of Great Britain. In 1931, South Africa became independent and in 1961 left the Commonwealth Nations to become a republic (World Book Encyclopedia, 1990). However, as a result of the long association with Britain, South Africa's government and legal system reflect that of the British Common Law.

The Council of the South African Institute of Chartered Accountants (SAICA) and the Accounting Practices Board, an accounting self-regulatory body, promulgates South African accounting standards. SAICA has been adopting IFRS with occasional minor modifications since 1995 and listed companies may follow South African GAAP or IFRS (IASB, 2000). During 1999, South Africa adopted over six IAS, effective in 2000, bringing South African accounting principles into almost complete harmonization with IAS (Crotty, 1999). Moreover, from 1998 to 2000, South Africa converged with 11 IAS (see Appendix A for more details).

While convergence of accounting standards may be preferred in South Africa, the technical director of Saica, Blumberg (see Crotty, 1999), believes that complying with IAS does not come without complications. She states that South African companies were to be given lead time to allow for compliance with IAS in 2000 as South African companies have not had a good track record of compliance with accounting principles (see Crotty, 1999). van Niekerk (1999) expressed the concern that IAS is required but not legally enforceable. Hence, South Africa's adoption of IAS may not result in relevant reporting to South African market participants. But most of the JSE companies in my sample are audited by one of the then Big 8 international accounting firms, implying understanding of and compliance with IAS.

McGregor and McGregor (1995) show that, prior to 1995, Anglo American and Sanlam owned 40.5% and 12.8%, respectively, of the JSE market capitalization. Hence, the JSE market may be dominated by institutional investors who have a controlling ownership of the common shares of a company. However, from 1998 to 2000, I find that Anglo American had greater than a 20% or controlling interest in only three of my sample firms and Sanlam had greater than a 20% interest in only one of my sample firms. I tested whether the presence of institutional owners with controlling interests explained value relevance on the JSE and found no support.

Table 1
Difference in net income reported using U.S. and Mexican GAAP

Year	1997	1998	1999	1997–1999
Mean (in millions)	14.29	–8.28	–17.29	7.60
Median (in millions)	1.28	1.09	0.89	–2.11
Standard deviation	76.65	13.11	27.03	228.51
Test of means: parametric <i>t</i> -test statistic	0.51	–0.66	0.61	0.26
Test of medians: Wilcoxon <i>Z</i> -test statistic	0.84	0.93	0.77	0.68
Number of observations	24	24	16	64

Mexico was conquered by the Spanish in 1951 and was a Spanish colony until it became independent in 1821 (World Book Encyclopedia, 1990). Mexico is the most populated of the Latin American countries and is both a Spanish- and English-speaking country. Mexico is strongly influenced by the United States and is a substantial trading partner with the United States, thereby explaining the enactment of the North American Free Trade Agreement (NAFTA) that dismantled trade barriers to foreign investment between these two countries. More recently, Mexico, Canada, and the United States have initiated annual meetings to orchestrate the convergence of their accounting standards. Mexico continues to use U.S. textbooks and professional literature in their accounting-education classrooms and as guides for accounting issues.

Accounting regulations and auditing standards are issued by a private standard-setting body: The Mexican Institute of Public Accountants (Choi, Frost, & Meek, 2002; Davis-Friday & Rivera, 2000). The Mexico accounting standard-setting process is similar to that of the British–American approach with exposure drafts disseminated to the public for review and comment. Accounting standards are promulgated by the Accounting Principles Commission (CPC) of the Mexican Institute of Certified Public Accountants. Mexico’s accounting standards are called “Bulletins.” From 1998 to 2000, Mexico converged with five SFAS, one APB Opinion, and four IAS (see Appendix A for details).

With few exceptions, Bulletins are essentially similar to U.S. and Canadian GAAP (Davis-Friday & Rivera, 2000; Securities & Exchange Commission, 1996).⁴ I confirm the similarity of Mexican GAAP to U.S. GAAP by examining the net incomes of Mexican firms listed on U.S. exchanges. The SEC requires foreign companies to complete a form 20-F with reconciliation between home country and U.S. GAAP reporting. I obtain a sample of 20-Fs for Mexican firms by searching Lexis-Nexis for the names of 93 Mexican companies listed on DataStream. Of these, 29 filed a 20-F between January 1997 and December 2000. Table 1 provides the mean and median difference in reported net income, where the difference is calculated as net income reported using U.S. GAAP less net income reported using Mexican GAAP.

For each year, the median difference between U.S. and Mexican reported net income is about \$1 million. Two-sample *t*-tests and Wilcoxon matched-pairs tests are used to measure whether the population means and medians differ significantly between net-

⁴ One notable difference between Mexican and U.S. GAAP is that, while U.S. GAAP prohibits revaluation of fixed assets subsequent to the initial purchase cost, Mexican GAAP permits revaluation of fixed assets. Unlike the United States, Mexico has historically been a hyperinflationary business economy.

income reported using U.S. GAAP and net-income reported using Mexican GAAP. I find no significant difference in reported net income under the two standards.

While the United States has a dominant influence on accounting standards in Mexico, Mexico also shows signs of convergence with IAS. For example, Mexico was one of the founding member countries of the IASC in 1973. IAS is to be followed by Mexican companies when Mexican GAAP is silent (Canadian Institute of Chartered Accountants, 2002). In December 1995, the Mexican bank regulatory agency began requiring Mexican banks to apply accounting principles consistent with those of IAS (IASC, 2000).

However, unlike the United States, the Mexican capital market is said to be controlled by families (La Porta et al., 1999). These families who have more than 10% of outstanding equity have the right to privileged information (see Bhattacharya et al., 2000).

In summary, both South Africa and Mexico are converging and, in some instances, complying with IFRS and/or U.S. GAAP. In South Africa, complying with South African GAAP is complying with IFRS, though not vice versa, and in Mexico many of the accounting regulations replicate or are highly influenced by U.S. GAAP and IAS.

2.2. Capital market structure

Usefulness implies that accounting has a dual role: relevance/reliability and timeliness. Investor protection differs across countries (Ball, Robin, & Wu, 2003; Frost & Pownall, 1994). Defond and Hung (2004) and Saudagaran and Diga (1997) suggest that varying investor-protection laws and enforcement in capital markets across the world may affect the timing of when information is processed. For example, emerging capital markets may allow insider trading or may have poor investor-protection laws. These capital market environments may affect the timing of when earnings are known to the market.

Timely financial reporting is essential to reduce information asymmetry between market participants. Unlike the United States, many developing countries have heavily concentrated ownerships in their financial markets. These principal shareholders will have incorporated their superior information through trades prior to the announcement date.

I describe the market infrastructure of two developing countries' stock exchanges. Then I measure the reaction to annual-earnings announcements within a short, 3-day window to suggest whether market infrastructure, specifically insider-trading laws, affects the information content of earnings announcements.

Johannesburg Stock Exchange (JSE) became privately owned after the end of apartheid in 1995. The JSE is the 16th largest market in the world and the third largest⁵ emerging market (see Jefferis & Okeahalam, 1999). As shown in Table 2, at the end of 1998, JSE had total market capitalization of more than \$262 billion and 668 listed companies (World Bank, 1999). In 1998, the exchange implemented an automated electronic-matching system: Johannesburg Equity Trading (JET). Dealers sell and buy orders at their investment house JET workstations. The JET system inserts orders into a queue and the main board ranks the orders based on a price/time priority. During the exchange hours,

⁵ The South African Stock Exchange is third largest in size, with China and Taiwan having the first and second largest domestic-share capitalization, respectively (see Choi et al., 2002).

Table 2

JC1998 capital market description

	South Africa (JSE)	Mexico (BMV)
Market capitalization 000s of U.S. dollars	262,478,000	154,044,000
Rank among emerging markets	3rd	8th
Number of companies listed	668	188
Average company size	392,900	819,400
Compliance	Not strong	Not strong
Institutional ownership	Yes, companies	Yes, families
Concentration of ownership	63.6%	52%
Voting rights rule	No one-share one-vote	No one-share one-vote
Shareholder voting rights overall	Very Strong—5	Weak—1
Restriction on trading before meeting	No	Yes
Proxy-by-mail rights	Yes	No
% Shares needed to call a shareholder's meeting	5%	33%

Sources: Voting rights data are from La Porta et al. (1998). All other data are derived from the World Development Report (World Bank, 1999) and DataStream.

9:30 a.m. to 4:00 p.m., buying and selling orders at the same price level are automatically matched. After JET replaced the outcry floor of the JSE in May 1998, daily trades increased from 2933 in February 1995 to 18,187 in May 1998 (MGK Maher BCom, 1999). I study the JSE after implementation of JET.

The JSE requires all listing firms to provide annual financial statements that are in English and audited by an independent accountant. Statements must be mailed to shareholders and submitted to the JSE Listings Division “within six months after year-end or at least 21 clear days before the date of the annual general meeting” (Johannesburg Stock Exchange Listings Division, 1999, pp. 3–23). If audited annual reports are not distributed to shareholders within 3 months of the financial year-end, a preliminary financial report must be distributed to the shareholders even if the report is unaudited.

Table 2 presents the JSE market infrastructure. JSE has very strong voting rights, no restriction on trading before a meeting, and proxy voting by mail. However, Block (2000) argues that insider trading is rampant on the JSE. The average holdings of the three largest shareholders for South African firms are 63.6% (La Porta et al., 1998). La Porta et al., (1998) provide evidence of an inverse relationship between market integrity and ownership concentration. However, they also report very strong shareholder rights on the JSE and Prather-Kinsey in 1999 found substantially increased surveillance of insider trading on the JSE with stiff penalties for violations.

Bolsa Mexicana de Valores Stock Exchange (BMV), located in Mexico City, is privately owned by a few Mexican brokerage houses. Trading began in the 1850s when Americans and Europeans traded mining shares on the streets in Mexico. Trading on the Bolsa floor did not begin until October 1895 (Bhattacharya et al., 2000). Since then, various institutions have provided facilities for the trading of shares in Mexico. The BMV is the only stock exchange in Mexico.

Regulation for the BMV was promulgated by the Credit Organization Law of 1932 and the Exchange Regulation Law in 1933 until 1975. After 1975, the Securities Market Act governed the BMV (see Bhattacharya et al., 2000). As noted in Table 2, the BMV had 188

issuers, not including mutual funds, and over \$154 billion in capitalization at the end of 1998. It is the largest developing stock exchange that is converging with U.S. GAAP.

Listing firms must provide annual, December 31 year-end, audited financial reports. The National Banking and Securities Commission is responsible for enforcing insider-trading laws, and states that inside information consists of “the acts of a corporation, accountants or administrators of a said corporation, which is not divulged to the public investor, but which can influence the prices and quotations of the stock’s price of said corporation” (Bhattacharya et al., 2000, p. 74). Block (2000) and Davis-Friday and Frecka (2002) assert that the BMV continues to be plagued with the perception of unchecked insider trading. Moreover, Mexican companies often issue multiple classes of equity that discriminate between foreign and domestic traders. These observations suggest that BMV may have poor market integrity.

Mexican protection rules are rooted in French civil law. French civil law provides the poorest legal protection to its shareholders (La Porta et al., 1998). As presented in Table 2, La Porta et al. (1999) report that BMV has the weakest shareholder rights and does not allow proxy-by-mail voting rights.

In summary, capital markets in both countries exhibit mixed characteristics relative to market infrastructure. JSE and BMV have historically had institutional or family dominated capital markets. However, on JSE, the companies in my sample tend not to be controlled by institutions (only 4 with controlling owners), have strong investor-protection laws, and increased surveillance and penalties for insider trading. On the other hand, Mexico has 12 companies with controlling family/institution owners, poor investor-protection laws, and no evidence of strong enforcement of insider-trading laws. Mexican investors, then, may be privy to accounting firm-specific information before it is released to the public, resulting in a market’s non-response (no information content) to the announcement of earnings.

I assess the relevance and reliability of financial-statement information in two ways. First, I measure the presence of a significant relation between market value and accounting information: book value of equity and/or earnings. Book values are value relevant in both markets: there is a positive and significant association between firm market value with financial statement reported earnings and/or equity values.

Second, I examine the information content of earnings announcements. For the South African sample, I find an immediate reaction to earnings announcements. Both trading activity and returns increase immediately and significantly at the time of the announcement of earnings. In contrast, on the Mexican stock exchange, I find no overall significant change in abnormal returns at the time of earnings announcements. The lead-lag relationship between A-shares and B-shares’ abnormal returns, respectively, suggest that the market infrastructure supports insider trading on the BMV.

3. Hypotheses and method of analysis

Prior studies show that the usefulness of financial reporting varies across countries. Alford, Jones, Leftwich, and Zmijewski (1993) find that earnings announcements have varying degrees of information content across 17 countries. They link the degree of

information content to reporting frequency and timeliness and suggest that future research should link the differences in earnings usefulness to differences in capital-market integrity (regulation) across countries. To my knowledge, no one has tested the usefulness of earnings announcements of JSE companies. I use two measures of usefulness-value relevance to test the relevance of reported earnings and equity and information content to test the timeliness of financial reporting.

3.1. Value relevance

I use the value-relevance model to examine the relation between firm market values and accounting measures. For this approach, an accounting variable I_{jt} has value relevance for firm j at time t if a function $g(\cdot)$ maps I_{jt} into the firm's price P_{jt} :

$$P_{jt} = g(I_{jt}) \quad (1)$$

I use a weighted least-squares regression model to test the value relevance of book values.

$$MV_{jt}/BV_{j,t-1} = \alpha_{0t} 1/BV_{j,t-1} + \alpha_{1t} BV_{jt}/BV_{j,t-1} + \alpha_{2t} NI_{j,t-1} + e_{jt} \quad (2)$$

where: MV_{jt} =market capitalization (market price per share times the number of shares outstanding) for firm j at the end of period t ; $BV_{j,t-1}$ =the book value of common equity of firm j at the end of period $t-1$; NI_{jt} =income statement reported net income for firm j for the time $t-1$ to t ; e_{jt} =residuals or error term.

This model mitigates the scale effect in price-levels regressions as it precludes heteroscedasticity and possible coefficient bias associated with the largest firms in the sample (see Chandra & Balachandran, 1992; Easton & Sommers, 2003). As a diagnostic test, I use least-squares regression to determine if the error term, e_{jt} , is explained by principal ownership.

I test for convergence by comparing the weighted least-squares regression models' R^2 of 1998 with that of 2000. If the two markets find convergence with developed-country GAAP useful information, then the R^2 of 2000 should be equivalent to or greater than that of 1998. Therefore, the two hypotheses tested are whether reported income and equity provide information useful to market participants and further whether convergence with developed-country standards provides persistent or increasing value-relevant information.

Hypothesis 1. There is a significant association between the book value of earnings and equity with market value on the JSE and BMV.

Hypothesis 1a. There is an increased explanatory power of the book value of earnings and equity with market value in 1998 as compared to 2000⁶ on the JSE and BMV.

3.2. Information content

An announcement is timely or has information content if it leads to price changes different from those expected before the announcement. Studies that document price-

⁶ I select 1998–2000 as the sample period. During this period, SA adopted the following IFRS, sometimes with slight modifications, in converging with IFRS.

related information content for earnings announcements include event-type studies such as Beaver (1968) and Ball and Brown (1968). I measure information content as an unanticipated change in the returns of a security. For announcements that are good news, the announcement has information content if returns are higher than expected; bad news announcements will have returns lower than expected.

Hypothesis 2. Earnings announcements on the JSE and BMV have information content if returns are higher than expected for positive earnings surprises and lower than expected for negative earnings surprises.

I continue the examination of returns by controlling for market movements at the time of the earnings-announcement period. For each firm announcement j and day t , I estimate α_j and β_j for the time period $t = -130$ to -31 :

$$R_{j,t} = \alpha_j + \beta_j R_{m,t} \quad (3)$$

where $R_{j,t}$ is the return for stock j on day t and $R_{m,t}$ is the return on the market for day t . I use the returns on the JSE and BMV value-weighted market indices from DataStream as proxies for the market indices in the two markets. The parameters α and β are estimated using both ordinary least squares and the method developed in Scholes and Williams (1977). Scholes and Williams' (1977) estimates of the market-model coefficients are used to compensate for nonsynchronous trading problems associated with infrequently traded securities. The Scholes-Williams β is estimated as

$$\beta_j^{\text{SW}} = \frac{\beta_j^- + \beta_j + \beta_j^+}{1 + 2\rho_m} \quad (4)$$

where β_j^- is the OLS slope estimate from the linear regression of $R_{j,t}$ on $R_{m,t-1}$; β_j is the OLS slope estimate from the linear regression of $R_{j,t}$ on $R_{m,t}$; β_j^+ is the OLS slope estimate from the linear regression of $R_{j,t}$ on $R_{m,t+1}$; and ρ_m is the estimated first-order autocorrelation of R_m . As in OLS, the intercept estimator forces the estimated regression line through the sample mean:

$$\alpha_j = \bar{R}_j - \beta_j^{\text{SW}} \bar{R}_m \quad (5)$$

where \bar{R}_j is the mean return of stock j over the estimation period and \bar{R}_m is the mean market return over the estimation period.

The abnormal return ($\text{AR}_{j,t}$) for firm j on each trading day t of the event period is calculated as

$$\text{AR}_{j,t} = R_{j,t} - \alpha_j - \beta_j R_{m,t} \quad (6)$$

The average abnormal return (AAR_t) on trading day t for a sample of N firms is the sample mean:

$$\text{AAR}_t = \frac{1}{N} \sum_{j=1}^N \text{AR}_{j,t} \quad (7)$$

I aggregate average abnormal returns for all N firms across event days $t = -1, 0$, and 1 to calculate a cumulative average abnormal return (CAAR):

$$CAAR = \frac{1}{N} \sum_{j=1}^N \sum_{t=-1}^{t=+1} AR_{j,t} \quad (8)$$

I examine abnormal returns using a short time window of 3 days ($-1, 0$, and 1) surrounding the earnings announcement. Long event windows can include price changes associated with news other than the release of earnings.

The sample of announcements is divided into two groups, based on whether earnings are higher or lower than the mean analyst estimate. Based on Hypothesis 2, announcements in a market will have information content if the sample of positive earnings surprises is accompanied by a positive CAAR and the sample of negative earnings surprises is accompanied by a negative CAAR.

4. Empirical analysis

4.1. Sample

My sample consists of JSE and BMV listed companies. I collect announcement dates for all earnings announcements made in 1998–2000 from Bloomberg and daily price data are from DataStream. I exclude two JSE announcements with fewer than 50 trading days during the estimation period, -130 to -31 . For the value-relevance analysis, I limit the sample to firms that have earnings and book value of equity from Global Vantage—262 firm-year South African observations and 164 firm-year Mexican observations. Earnings are measured as total net profit after deducting tax, minority interest, and preference dividends but before any post-tax extraordinary items, allocation to reserves other than untaxed reserves, and post-tax disclosed extraordinary items. The sample selection process is presented in Table 3.

The final information-content sample consists of 624 JSE and 115 BMV earnings announcements. The JSE and BMV sample is fairly small in market value compared to the companies listed on DataStream. The mean market value for all firms on DataStream is \$2,941,760,000, but the mean market value for all firms in my JSE sample is \$475,000,000 and BMV sample is \$1,950,000,000. The average market capitalization

Table 3
Sample selection criteria 1998–2000

Sample criteria	South Africa JSE	Mexico BMV
Announcements on Bloomberg	1314	309
Sufficient returns on DataStream ^a (information-content sample)	624	115
Sufficient earnings and book value of equity data on Global Vantage (value-relevance sample)	262	164

^a I exclude firm-year observations with less than 50 of the 100 trading days during the estimation period, that is, the firm-year trades less than 50% of the days during the estimation period.

for domestic firms on the JSE and BMV are approximately \$392.9 million and \$819.4 million (Standard & Poor's, 2000). My sample firms, then, tend to be larger than the market capitalization of domestic firms listed on JSE and BMV, respectively.

The distribution of announcement dates appears in Table 4. As can be seen in Panel B, the most frequent month for earnings announcements on JSE is August, with 126 earnings announcements. Only six firms announced earnings in January. JSE earnings-announcement dates are spread throughout the year, with 46% of the announcements in the first half of the year and 54% of the announcements in the second half of the year. Further, as shown in Panel A, the announcements are fairly evenly distributed across the years 1998–2000. This dispersion of earnings-announcement dates throughout the 3-year period minimizes the effect that market-wide events on any given day, month, or year, may have on stock prices or trading activities. On the other hand, BMV announcements are all within the first three months of the year with February having the greatest number of announcements, 78. The BMV requires all listed firms to provide annual reports using December 31 year-ends.

Panel C of Table 4 presents the distribution of the sample firms by industry for South Africa and Mexico. My sample spans all of the one-digit standard industrial-classification codes. Except for finance, insurance and real estate, and wholesale and retail trade in South Africa, and manufacturing and wholesale and retail trade in Mexico, no one industry accounts for more than 12% of the sample. Thus, there is little evidence of industry clustering in the sample.

Table 5 presents the Pearson correlation coefficients for market value, reported net income, and book value of equity. The strongest correlation of the South Africa variables is between market value with book values of net income and equity. The strongest correlation in the Mexican market is between the independent variables book values of net income and common equity. Therefore, variance-inflation factors (VIF) were used to test for significant multicollinearity among the independent variables.

Table 6 shows the mean, median, and standard deviation of book values of earnings and equity, market value of common equity, and book values of net income and market value scaled by book value. Overall, the scaled book values of net income and equity are greater in Mexico than in South Africa. The market value of common equity, and book values of net income and common equity increased from 1998 to 2000 in South Africa and Mexico. These findings indicate a growing economy and capital market from 1998 to 2000 in both developing countries.

4.2. Value relevance

I test whether there is an association between book values of earnings and equity with firm market value. Table 7 provides the coefficient estimates, weighted regression model significance, VIF, and R^2 for estimation of Eq. (2) for each market, as well as for years 1998 and 2000. Consistent with financial statements providing value-relevant information, the weighted regression models for the South Africa and Mexico samples have adjusted R^2 's of 0.55 and 0.70, respectively.⁷ A significant association exists between market value

⁷ Easton and Sommers (2003) find the R^2 's for their sampled firms to be between 0.19 and 0.80 when regressing price on earnings.

Table 4

Distribution of announcement dates and industry classifications

Panel A: distribution of announcement dates by year

Year	South Africa (JSE)		Mexico (BMV)	
	<i>N</i>	Percent	<i>N</i>	Percent
1998	143	22.91	43	37.39
1999	220	35.26	32	27.83
2000	261	41.83	40	34.78
Total	624	100.0	115	100.0

Panel B: distribution of announcements by month

Month	South Africa (JSE)		Mexico (BMV)	
	<i>N</i>	Percent	<i>N</i>	Percent
January	6	0.96	13	11.30
February	32	5.13	78	67.83
March	46	7.37	24	20.87
April	33	5.29		
May	108	17.31		
June	65	10.42		
July	28	4.49		
August	126	20.19		
September	84	13.46		
October	35	5.61		
November	52	8.33		
December	9	1.44		
Total	624	100	115	100.00

Panel C: industry distribution

1-digit SIC code	Description	Number of firms
<i>South Africa</i>		
1	Agriculture, mining, and construction	28
2	Manufacturing—food, paper, chemicals, and petroleum products	27
3	Manufacturing—metal, machinery and equipment, and electronics	39
4	Transportation, communication, electric gas, and sanitary services	10
5	Wholesale and retail trade	56
6	Finance, insurance, and real estate	70
7	Services—hotel, personal, business, repairs, motion picture, and amusement	26
8	Services—health, legal, education, and other	4
9	Public administration	2
	Total	262
<i>Mexico</i>		
1	Agriculture, mining, and construction	7
2	Manufacturing—food, paper, chemicals, and petroleum products	40
3	Manufacturing—metal, machinery and equipment, and electronics	28
4	Transportation, communication, electric gas, and sanitary services	12
5	Wholesale and retail trade	42
6	Finance, insurance, and real estate	17
7	Services—hotel, personal, business, repairs, motion picture, and amusement	7
9	Public administration	11
	Total	164

Table 5

Pearson correlation coefficients: South Africa and Mexico 1998–2000

Market value		BV equity	Net income
<i>Panel A: South Africa</i>			
Market value	1.000	0.604***	0.739***
Net income		1.000	0.559***
BV equity			1.000
<i>Panel B: Mexico</i>			
Market value	1.000	0.825***	0.750***
Net income		1.000	0.866***
BV equity			1.000

*** $p \leq 0.0001$.

and earnings for the sample overall and for 1998 and 2000. This association is greater in Mexico than in South Africa for the full sample and year 2000, but the association is greater in South Africa in 1998. The book value of common equity is significant in explaining market values on the JSE but not on the BMV. In summary, there is a positive and significant relationship between book values of earnings and/or equity on the JSE and BMV; however, the explanatory power of book values is greater on the BMV except in year 1998.

Table 6

Mean, median, and standard deviation: South Africa and Mexico

		Rands/Pesos				
	No. of observations	Market value of common equity (MC)	Net income (NI)	NI/BV	Book value of common equity (BV)	1/BV
<i>South Africa</i>						
Full sample	262	6488.56	632.62	0.257	3070.11	0.007
		2879.12	254.30	0.173	1517.54	0.001
		9824.25	1242.04	0.446	4098.63	0.058
1998	96	5242.43	420.31	0.237	2834.26	0.014
		2553.97	239.16	0.166	1351.55	0.001
		7391.68	544.70	0.448	4041.86	0.092
2000	63	8009.98	821.13	0.218	3716.44	0.002
		3072.58	293.93	0.173	2335.00	0.000
		12,960.71	1399.77	0.217	4493.79	0.009
<i>Mexico</i>						
Full sample	164	23,675.02	1836.18	0.126	12,295.33	0.000
		6596.06	856.27	0.116	7690.34	0.000
		67,943.09	4178.38	0.086	18,780.75	0.001
1998	58	10,646.26	1298.42	0.104	11,707.72	0.000
		5096.27	792.615	0.104	7376.31	0.000
		12,733.08	2961.62	0.056	19,219.80	0.001
2000	50	23,807.53	2147.17	0.144	11,860.17	0.000
		7127.38	860.33	0.121	8956.19	0.000
		47,480.90	4875.93	0.101	12,333.86	0.000

Table 7

Value relevance: dependent variable is market value 1998–2000

	Full sample	Convergence				
		1998		2000		
South Africa—number of observations	262	96		63		
	Parameter estimate	VIF	Parameter estimate	VIF	Parameter estimate	VIF
1/BV	21.370***	1.01	22.583***	1.02	141.024***	1.07
BV/BV	0.539	1.35	−1.561***	1.31	0.907**	2.16
NI/BV	10.850***	1.33	22.977***	1.28	5.377***	2.06
F-value	109.50***		430.7***		79.60***	
Adjusted R ²	0.55		0.93		0.79	
Mexico—number of observations	164	58		50		
1/BV	−120.213	1.13	−361.681	1.55	−331.304	1.57
BV/BV	0.654***	3.37	0.805**	4.59	0.455*	3.40
NI/BV	6.033***	3.19	4.319*	4.67	7.653***	3.09
F-value	126.85***		47.52**		98.75***	
Adjusted R ²	0.70		0.71		0.85	

$$MV_{jt}/BV_{j,t-1} = \alpha_{0t}1/BV_{j,t-1} + \alpha_{1t}BV_{jt}/BV_{j,t-1} + \alpha_{2t}NI_{jt}/BV_{j,t-1} + e_{jt}.$$

VIF = variance inflation factor.

Market price is based on closing stock prices 3 months subsequent to fiscal year-end.

NI is earnings is total net profit after deducting tax, minority interest, and preference dividends but before extraordinary items.

BV is book value of common equity.

I compared the R^2 of 1998 with that of 2000 to assess whether converging with developed country GAAP results in more value relevance over the database period. Using the Vuong test, there were no significant differences between 1998 and 2000.

* $p \leq 0.01$.** $p \leq 0.001$.*** $p \leq 0.0001$.

The other research question relative to value relevance was whether the JSE and BMV capital markets find financial reporting converging with developed-country GAAP useful. The results indicate that the R^2 's are greater at the end of the database period, 2000, for Mexico ($R^2=0.85$) than at the beginning of the database period, 1998 ($R^2=0.71$). However, in South Africa, there is a decrease in the explanatory power of book values from 1998 ($R^2=0.93$) to the end of the database period, 2000 ($R^2=0.79$). During this period, South Africa was accepting IAS with a lag and Mexico was adopting U.S. GAAP and IAS methodologies.

I used the Vuong test to assess whether the adjusted R^2 's between 1998 and 2000 were significantly different. The Vuong Z-test statistic was not significant. Thus, while I find an increase in R^2 between 1998 and 2000 for Mexico, I find no evidence that R^2 's between 1998 and 2000 are significantly different. These findings must be interpreted with caution, as I had to delete those firms that did not have data in both 1998 and 2000 and the database includes only 3 years. Further, unlike Dechow (1994), I measure the R^2 between two time periods rather than within one time period. I therefore conclude that Mexico, converging with developed-country GAAP, had marginal increases in value relevance from 1998 to 2000.

4.2.1. Diagnostics

I tested for multicollinearity using variance inflation factors (VIFs). The VIFs are presented in Table 7. The VIFs tended to be less than 10. I therefore assumed that the independent variables were orthogonal to each other and that multicollinearity was not present in the weighted least-squares regression models.

I was concerned that firm market values also might have been explained by the presence of a principal owner that controlled greater than 20% of common shares outstanding. Disseminating information in developed-country GAAP (for example South African companies reporting using IAS on the London Stock Exchange and Mexican companies reporting using U.S. GAAP on the New York Stock Exchange) may overstate the value relevance of financial reports prepared in domestic country GAAP. I define developed-country GAAP as African or Mexican firms cross-listed on the New York, NASDAQ, American or London Stock Exchanges, or South African companies that prepare their financial reports in compliance with IAS or Mexican firms that prepare their financial reports in compliance with U.S. GAAP or IAS. Developed-country information was collected from Global Vantage and Mergent Moody's International Manual (2000). Principal owners who own a controlling or greater than 20% of the common shares outstanding may be influencing the value relevance of book values. Thus, I included developed country GAAP and principal owner as dummy variables to assess whether institution/family also explained the value relevance of earnings in South Africa and Mexico.

Ordinary least-squares linear regression was used to determine if the residuals in the weighted least-squares regression were explained by developed-country GAAP disclosures and/or principal owner. My results indicate that, for the full sample of Mexican and South African firms, value relevance was not further explained by whether the company also reported in a developed-country GAAP or whether a principal owner owned greater than 20% of the common shares outstanding.

4.3. Abnormal market returns

Earnings announcements have information content if they exhibit returns different from those during the non-announcement period, whether announcements are good news or bad news. I examine daily returns in two emerging capital markets: JSE and BMV. Ordinary least-squares regression is used to determine whether returns are significantly different during the estimation period as compared to the event period. However, there is concern of bias and inconsistency in the least-squares estimators as some securities listed on these exchanges are traded infrequently, only 50% of the time, during the estimation period. Infrequent trading may cause an econometric problem of "errors in variables" resulting in overstatement of the true variance and understatement of true covariance of returns (Scholes & Williams 1977, p. 311). I also use the Scholes-Williams estimation of α_j and β_j to control for nonsynchronous data and to increase the power of the tests.

Table 8 shows the abnormal returns using ordinary least-squares (OLS) regression estimators and Scholes-Williams (SW) estimators for JSE and BMV. During the 3-day earnings-announcement window, both estimators (OLS and SW) show significantly different abnormal returns for South Africa but not for Mexico. That is, earnings are reported timely on the JSE but not on the BMV. Regarding returns on each event date for

the full sample, OLS and SW display significantly different returns during the event period for JSE but not for BMV.

Table 8 also presents the OLS and SW results for firms reporting positive earnings surprises and negative earnings surprises. During the 3-day event period, abnormal returns are significantly different than during the estimation period for JSE but not for BMV. Again, JSE finds earnings announcements as timely information whereas BMV does not. BMV allows market participants with >10% interest in a company to have inside information. Because BMV has many companies with principal ownership >10% of common equity outstanding, the market may have adjusted their securities before the earnings-announcement date. Hence, although one would expect to find a significant relationship between market value and book

Table 8

Panel A: abnormal returns for earnings announcements for years 1998–2000

	South Africa		Mexico	
	Abnormal returns ordinary least squares (%)	Abnormal returns Scholes-Williams estimation (%)	Abnormal returns ordinary least squares (%)	Abnormal returns Scholes-Williams estimation (%)
Full sample	<i>N</i> =624	<i>N</i> =624	<i>N</i> =115	<i>N</i> =115
Days – 1 to + 1	3.28**	3.37**	–0.14	0.09
Day – 1	0.32*	0.35*	0.10	0.14
Day 0	2.63**	2.67**	–0.24	–0.15
Day + 1	0.33*	0.35*	0.00	0.12
Positive surprise	<i>N</i> =159	<i>N</i> =159	<i>N</i> =45	<i>N</i> =45
Days – 1 to + 1	1.52**	1.61**	0.79	1.02
Day – 1	0.56*	0.58*	0.57	0.57
Day 0	0.63*	0.66*	–0.28	–0.18
Day + 1	0.33	0.37	0.50	0.63
Negative surprise	<i>N</i> =200	<i>N</i> =200	<i>N</i> =67	<i>N</i> =67
Days – 1 to + 1	6.01**	6.13**	–0.91	–0.68
Day – 1	0.05	0.09	–0.26	–0.21
Day 0	6.19**	6.25**	–0.32	–0.24
Day + 1	–0.24	–0.22	–0.33	–0.22

Legend: *** $z \leq 0.0001$, ** $z \leq 0.001$, * $z \leq 0.01$. *N*=sample size.

Positive (negative) surprise=net income of firm *i* > (<) mean analyst forecast of firm *i*. There were 265 South African firm-year observations and three Mexican firm-year observations excluded because they had no analyst following reported on I/B/E/S.

Panel B: abnormal returns on days – 10 and + 3 for years 1998–2000

	Scholes-Williams market model			
	Day – 10		Day + 3	
	<i>t</i> -statistic	<i>z</i> -statistic	<i>t</i> -statistic	<i>z</i> -statistic
A-shares	2.00*	1.33	–0.01	0.34
B-shares	1.60	0.66	–3.43**	–2.71*

* $p < 0.05$, ** $p < 0.01$.

There were ten companies with A-shares-only issues and 29 companies with B-shares-only issues.

values, since earnings are known by some on BMV before the earnings announcement date, there is no earnings information content on the announcement date.

I conducted a more refined test for insider trading using a method of the finance literature. Bhattacharya et al. (2000) test for insider trading by first categorizing returns into A-share and B-share firm issues. Then they study the lead-lag relationship between A-shares and B-shares to test for insider trading as A-shares, owned by domestics only, would have access to information before the earnings announcement day, whereas B-shares, owned by non-domestic shareholders, would not. Global Vantage provides a distinction between A-share and B-share series and I found that, during 1998–2000, 10 sampled companies had issued A-share-only issues and 29 sampled companies had issued B-share-only issues. Table 8, Panel B provides the abnormal returns test on days -10 and $+3$ for the A-share and B-share issues. The abnormal returns, computed using the Scholes-Williams Market Model, for A-share issues are significantly different from those during the non-announcement period on day -10 and not so on day $+3$. However, the abnormal returns for B-share issues on day $+3$ are significantly different from zero but not on day -10 . Thus, the lead-lag relationship between A-shares and B-shares from the pre-announcement and announcement periods, respectively, indicates that information is incorporated into the A-shares first and then into the B-shares. As the finance literature contends, and I support, this lead-lag relationship translates to insider trading which may be responsible for the overall non-response of returns to earnings announcements during the event period (-1 to 1) on the BMV.

The FASB and IASB may find these results interesting because book values may provide relevant information, but not timely. Developing countries have capital-market infrastructures different from that of developed countries. BMV allows insider trading and has poor investor-protection laws. This phenomenon may explain why overall earnings announcements on the BMV do not have information content. The FASB and IASB should consider that timeliness may be hampered by the infrastructure of a stock exchange. I agree with Ball et al. (2003), who argue that the focus on accounting standards in the literature is incomplete. They also find that financial reporting is sensitive to manager incentives and my research shows that financial reporting is sensitive to capital-market infrastructure, too.

5. Summary and suggestions for future research

The objective of this study is to assess whether developing countries (South Africa and Mexico) moving toward convergence with developed-country accounting standards (International Accounting Standards and/or U.S. GAAP) find developed-country standards useful. Many contend that accounting standards must reflect their environments to provide useful earnings numbers (Nobes & Parker, 1983; Radebaugh & Gray, 1997). The IASB contends that one set of accounting regulations should be useful to all countries, regardless of the degree of development. JSE and BMV represent the two emerging stock exchanges converging with IAS and/or U.S. GAAP.

My results show that both countries are using accounting regulations converging with developed-country GAAP and find book value of equity and/or earnings as value relevant. However, I found that earnings are timely reported on JSE and not on the BMV. That is, overall, earnings announcements in Mexico have no significant information content. The

lead-lag reaction to earnings announcements between A-shares and B-shares suggests insider trading. Accounting regulators, then, should consider the effect that market infrastructure has on accounting usefulness as it can jeopardize the timeliness of reported earnings.

I suggest that future research consider the value relevance of developed-country GAAP over a longer period of time to assess whether convergence results in significantly increased value relevance. These tests might also be applied to smaller and less developed countries than South Africa and Mexico to understand what generalities, regarding the usefulness of developed-country GAAP, apply to developing countries.

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Appendix A. South African adoption of IAS from 1998 through 2000

IAS 10 Events after the balance-sheet date (1999)
 IAS 16 Property, plant, and equipment (1998)
 IAS 19 Employee benefits (2000)
 IAS 22 Business combinations (1998)
 IAS 28 Accounting for investments in associates (2000)
 IAS 31 Financial reporting of interests in joint ventures (2000)
 IAS 34 Interim financial reporting (February 1998)
 IAS 35 Discontinuing operations (1998)
 IAS 36 Impairment of assets (1998)
 IAS 37 Provisions, contingent liabilities, and contingent assets (1998)
 IAS 38 Research and development costs, intangible assets (1998)
 Source: Deloitte and Touche (2003).

Appendix B. Mexican adoption of U.S. GAAP and IAS methodology from 1998 to 2000

SFAS 52, IAS 21 Foreign Currency Translation (1998) Bulletin B-15
 SFAS 109, IAS 12 Income Taxes (May 1999) Bulletin D-4
 APB 14, SFAS 107 and 133, IAS 32 Financial Instruments (February 2000) Bulletin C-2
 SFAS 130, IAS 1, Comprehensive Income (August 2000) Bulletin B-4
 Sources: Alberto Napolitano (in an e-mail message dated July 8, 2005) and Canadian Institute of Chartered Accountants (2002).

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The impact of tax holidays on earnings management: An empirical study of corporate reporting behavior in a developing-economy framework

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Abstract

This study investigates whether foreign investment enterprises (FIEs) in China alter their corporate reporting behavior in response to a known schedule of tax-rate increases. The context of this investigation is a tax-incentive scheme that allows firms to pay taxes at a reduced rate for a limited period of time, and then at a higher rate when this period expires. If managers attempt to maximize firm value by minimizing tax costs, then the spread of tax rates in the periods surrounding the rate change may provide a substantial incentive for them to accelerate revenue and defer expenses. Consistent with this hypothesis, the empirical results indicate that firms report significantly higher discretionary current accruals for the years before tax-rate increases. The evidence, which indicates that firms manage earnings upward to take advantage of lower tax rates that are available in certain years, has important implications for tax policymakers.

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Keywords: Discretionary accruals; Earnings management; Foreign investment enterprises (FIEs); Income shifting; Tax holidays

1. Introduction

Most research on tax-induced earnings management is devoted to publicly traded firms in developed economies, and particularly the United States (Shackelford &

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Shevlin, 2001).¹ However, due to data limitations, little research has been carried out on the effect of tax on the corporate reporting of privately held firms in developing economies. Although both publicly traded and privately held firms have incentives to avoid corporate tax, privately held firms are more aggressive than their publicly traded counterparts, because the consequences of tax avoidance for financial reporting are relatively less important for them (Cloyd, Pratt, & Stock, 1996; Mills, 1998).² Therefore, this study makes an attempt to uncover systematic evidence of tax-induced income shifting by privately held firms in a developing economy by investigating whether foreign investment enterprises (FIEs) in China have a tax-rate-based incentive to strategically shift income across different tax-holiday periods to minimize income taxes. This question is important, because many developing countries, such as Brazil, India, and Mexico, use tax holidays in a similar way to China to attract foreign investment by granting qualified investors a limited period of tax exemption and reduction. Evidence from this study will help tax policymakers to understand the possible impact of tax holidays on the reporting behavior of foreign investors, and to plan more effective and efficient tax auditing to minimize the loss of revenue that arises from abusive tax avoidance.

The tax-incentive scheme in China provides a distinct setting within which to test the effect of different tax concessions on corporate reporting behavior. In China, FIEs of a production nature generally qualify for a five-year tax holiday (i.e. a tax rate of zero for the first two profit-making years and a 50% reduction in the applicable tax rate for the following 3 years), and are then taxed at the normal rate of 30% (or 15% in special zones) when the concession period expires. These rules provide a productive setting within which to test the incentive to manage earnings that are generated by the magnitude of the tax-rate change. Following previous studies (Dechow, Sloan, & Sweeney, 1995; Guenther, 1994; Lopez, Regier, & Lee, 1998), this research uses the current accruals, which are most directly related to taxable income, to measure earnings management. By knowing *ex ante* the types of accruals that are most likely to affect taxable income and by examining whether the same group of firms shifts their taxable income in the periods before and after tax-rate changes, this study reduces noise and avoids the need to control for the effect on accounting earnings of certain confounding factors that are associated with different corporate characteristics to create a more powerful test of tax-motivated earnings management (Guenther, 1994).

¹ For example, Harris (1993), Guenther (1994), Lopez et al. (1998), Maydew (1997), and Scholes, Wilson, and Wolfson (1992) provide evidence that the accounting earnings of US publicly held firms are managed in response to changes in corporate income tax-rates. As different social contexts and business environments may provide different incentives and opportunities for earnings management, corporate reporting behavior in developed countries may not be the same as that in developing countries.

² Klassen (1997) suggests that as the ownership of privately held firms is often concentrated in the hands of relatively few owners who are usually also the managers of the firm, private firms can efficiently inform shareholders of firm value through channels other than audited financial statements. To the extent that it is less costly to reduce both reported earnings and taxes, private-firm managers are likely to be more aggressive tax planners. Furthermore, although no country is free from tax avoidance, developing economies are likely to experience a higher level of tax abuse than developed economies because they lack infrastructure and expertise in tax administration.

As changes in tax rates provide a substantial incentive for firms to shift income, it is hypothesized that firms will report higher discretionary accruals for the year before the scheduled tax-rate increase. This income shifting can be accomplished through the acceleration of income from a high-tax to a low-tax year or the deferral of expenses from a low-tax to a high-tax year. The hypothesis is tested using ordinary least-squares (OLS) estimates from balanced panel data that covers four years and 112 firms. The empirical results support the view that firms alter their reporting behavior in response to anticipated changes in tax rates, and specifically highlight that the sample for the period before a tax-rate increase reports higher discretionary accruals than the sample for the period after a tax-rate increase by an average of 1.03% of total assets.

This research complements the study of Chan and Mo (2000) on tax noncompliance among FIEs in China. Although the results of Chan and Mo (2000) suggest that in the tax-holiday period firms have low tax audit adjustments and thus are at their most compliant, this does not necessarily imply that these firms lack the incentive to shift revenues and expenses forward or backward to minimize their tax liabilities. Furthermore, income shifting may not necessarily give rise to tax noncompliance,³ and therefore Mo (2003, p. 163) suggests that future research on the financial-reporting behavior of FIEs during tax holidays is warranted. To this end, this paper examines a more general case of the role of tax holidays in financial reporting by addressing how a tax-rate-based incentive alters the decision by managers to engage in activities that affect the timing of income and cash flows. From a public-policy perspective, the results provide evidence of the consequences for government revenue of changes in tax rates that are associated with differential tax statuses. Since many developing countries use tax holidays similar to those of China to attract foreign investment for economic development, the results of this study should provide a useful reference for policymakers in other developing countries. Concern has long been expressed that developing countries forego too much revenue through tax concessions (Tanzil & Zee, 2001), and the ability of corporate managers to avoid taxes through earnings management creates additional constraints on the fiscal revenue of these countries.⁴

The remainder of the paper is organized into four sections. The next section describes the background to the study and develops the research hypothesis. Section 3 explains the research methodology. Section 4 presents the empirical results, and Section 5 draws some conclusions.

³ For example, a firm can shift income across years by accelerating or delaying shipments of goods to produce a more appropriate sales figure. Firms that accelerate or defer financial-statement income are, in many cases, also accelerating or deferring taxable income (Guenther, 1994). Although firms that report a conforming book income in the same accounting period are less likely to trigger tax-audit adjustments (Mills, 1998), firms that shift income between the periods surrounding a tax-rate change may be able to save on current taxes.

⁴ For example, China's anti-avoidance campaign in 2002 resulted in the recovery of underreported tax payments of about US\$1.82 billion (SCMP, 2002). The effect of tax avoidance on the economies of developing countries is more pronounced, because their governments face large fiscal deficits and rely heavily on public-sector borrowing.

2. Background and research hypothesis

2.1. *Financial reporting for FIEs*

The open-door policy that was launched by the Chinese government altered China's development strategy from one that was based on self-sufficiency to one that is founded on active participation in the world markets. In the early 1990s, China witnessed a sharp growth in the inflow of foreign direct investment, and for most years since 1993 has been the second largest recipient of foreign investment in the world behind the United States. Following its accession to the World Trade Organization, China overtook the United States for the first time in 2002 to become the largest recipient of foreign direct investment (SCMP, 2003).

FIEs in China take the form of joint ventures and wholly foreign-owned enterprises. By the end of May 2005, there were about 520,000 FIEs in China, and foreign investment had reached US\$600 billion (MOFCOM, 2005). The majority of these enterprises are joint ventures, because the government wishes to disseminate modern technology and management skills to Chinese enterprises through foreign-partnered joint ventures. Hong Kong, Japan, Singapore, South Korea, Taiwan, the United Kingdom, and the United States are the main sources of foreign direct investment in China.

Before 1985, the financial reporting of FIEs in China was governed by the accounting system for equity joint ventures. The unification of the tax laws in 1991 paved the way for the consolidation of accounting requirements, and in 1992 the Ministry of Finance issued the Accounting System for Foreign Investment Enterprises, which applies to all forms of ventures. Although under this system FIEs may prepare their financial statements based on international practices, they are not allowed to make entries in their account books that depart from the tax rules when determining financial statement income. Given that tax rules prevail over general accounting principles in circumstances in which the accounting treatment that is adopted by a business contradicts the tax regulations, accounting income differs little from taxable income. Therefore, to improve the usefulness of financial reports, China adopted a comprehensive Accounting System for Business Enterprises, which came into effect on 1 January 2002 for both domestic enterprises and FIEs. The new system lessens the requirement for book-tax conformity by allowing firms to make provision for asset-impairment losses.

FIEs are required to submit their annual audited financial statements to government agencies for monitoring purposes. Further government monitoring is exercised by the introduction of local partners into FIEs as a control mechanism to reduce information asymmetry, as expatriates from head offices usually take up key positions in FIEs and thus give the foreign partner an information advantage over the government agencies about the firm's operations. However, some of these local managers may not play the monitoring role that the government expects them to play because their basic salary is relatively low (Chan & Mo, 2000). Furthermore, most FIEs lack strong incentives for quality audits, as they are private firms that can efficiently inform the owners of firm value and performance by means other than audited financial reports (Klassen, 1997).

2.2. Taxable income of FIEs

China adopts a resident concept to determine the extent to which FIEs are liable for income tax, and requires FIEs to pay income tax on income that is derived from sources both inside and outside China at a rate of 30% (or 15% in special areas), plus a local tax of 3%. Non-resident enterprises, such as foreign enterprises that are founded outside China but have some form of business presence within China, are required to pay income tax on income that is derived from sources within China only. The taxable income of FIEs is the net profit after the deduction of costs, expenses, and losses in a tax year. In general, costs and expenses that are charged to financial accounts are deductible for tax purposes as long as they are not capital in nature, are incurred for business purposes, and do not exceed the deductible limits that are imposed by the tax law. An accrual basis is used to compute taxable income.

2.3. Tax incentives for FIEs

Like many other developing economies, China provides a comprehensive tax-incentive scheme for eligible FIEs, which includes the granting of a five-year tax holiday to production firms that are scheduled to operate for a period of not less than 10 years. In other words, firms are exempt from enterprise income tax in the first two profit-making years, and are allowed a 50% reduction in tax in the ensuing 3 years. The first profit-making year is the year in which the firm makes a profit after offsetting allowable losses that have been accumulated since the business commenced. Once started, the tax holidays cannot be deferred due to losses that are incurred during the tax-holiday period. When the concession period expires, firms pay standard taxes at the normal rate.

2.4. Tax-induced earnings management

As the tax-holiday period is generally limited to 5 years and the normal tax rate resumes when the concession period expires, firms in the tax-holiday period will be motivated to recognize revenue as early as the facts allow and to capitalize expenditure over as long a period as is credible, whereas firms in the post-holiday period will be inclined to exaggerate the expenses and losses that have been incurred. For example, the early recognition of US\$1.00 of taxable income from a year in which it would be taxed at 30% to a year in which it would be taxed at 15% would be equivalent to earning a rate of 21% [i.e. $1.00 \times (1 - 0.15) = 1.21 \times (1 - 0.30)$]. If managers attempt to maximize firm value by minimizing tax costs, then this tax-rate change provides a substantial incentive to shift the recognition of revenue and expenses across periods. Fig. 1 identifies the years in which tax rate incentives to shift income exist. It is expected that in anticipation of a future tax-rate increase, managers will be inclined to accelerate revenue from relatively high-rate years (years 3 and 6 in the figure) to relatively low-rate years (years 2 and 5) or defer expenses from low-rate to high-rate years.

A manager can generate a higher income by accelerating the delivery of finished goods, decreasing bad-debt provision, decreasing inventory write-offs, delaying the purchase of expensive inventory at year-end when LIFO is employed, deferring R&D and advertising

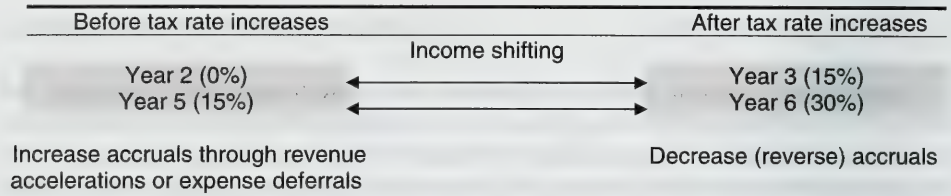


Fig. 1. The magnitude of the tax-rate change and income shifting across years.

expenditure, classifying more manufacturing overhead costs to be inventoriable costs rather than period costs, or treating revenue expenditure as capital expenditure.⁵ However, there are non-tax costs that are associated with these actions. For example, delaying the delivery of finished goods may cause customer relations to deteriorate and inventory holding costs to increase, and the ensuing report of low levels of accounting income may violate debt-covenant restrictions (Cloyd et al., 1996; Guenther, 1994; Mills, 1998). Thus, managers who engage in this form of earnings management typically trade off potential tax savings and non-tax costs.

2.5. Research hypothesis

Earnings can be managed by a variety of means, including the use of accrual choices, the implementation of changes in accounting methods or capital structure, and the proper management of the timing of non-recurring transactions (McNichols & Wilson, 1998). Compared to the changing of accounting methods (e.g., from FIFO to LIFO), accrual choices are less visible, and the tracing of income differences that are caused by accruals can be difficult because the enforcing agency may not have enough information to make the necessary adjustments (Cahan, 1992; Schipper, 1989). Therefore, this study examines earnings management through the discretionary component of current accruals (Dechow et al., 1995; Jones, 1991; Lopez et al., 1998). Current accruals (CA) for firm *i* in year *t* are captured by the change in accounts receivable (AR) plus inventory (INV) less the change in accounts payable (AP) plus accrued expenses (AE) from year *t* – 1 to *t*. In conformance with Lopez et al. (1998), this relationship can be written as follows.

$$CA_{it} = (\Delta AR_{it} + \Delta INV_{it}) - (\Delta AP_{it} + \Delta AE_{it}) \tag{1}$$

Based on this equation, increasing accounts receivable and inventory to accelerate revenue or decreasing accounts payable and accrued expenses to defer expenses (or both)

⁵ Nelson, Elliott, and Tarpley (2003) broadly define earnings management depending on whether it is within GAAP, difficult to distinguish from GAAP, and clearly not GAAP. Although the acceleration of revenue and the deferral of expenses fall within GAAP, the recording of fictitious sales, the backdating of sales invoices, and the recording of sales before they have been realized clearly violate GAAP. Moreover, there is a clear conceptual distinction between earnings management and fraud. Whereas earnings management through the legitimate exercise of accounting discretion may be acceptable, accounting choices that are fraudulent are likely to be sanctioned by enforcing agencies. Hope and Pope (2003) suggest that when more choice among accounting methods is allowed, it is important for firms to follow prescribed accounting standards to improve their earnings quality.

will cause accruals to be positive. Thus, if managers use accruals to accelerate financial statement income in anticipation of a tax-rate increase, then current accruals in the year immediately preceding the year of the rate increase will be positive. This leads directly to the following hypothesis.

Firms will make greater positive (income-increasing) accrual changes in the year before a tax-rate increase than in the following year.

3. Research methodology

3.1. Sample selection

To test the hypothesis, the financial-statement data of firms were collected from local tax bureaus in major coastal cities in China where FIEs are densely located.⁶ The following screening criteria were imposed. First, the firms must have gone through the five-year tax-holiday period over their investment horizon. Second, six consecutive calendar years of financial-statement data had to be available for each firm.⁷ Third, to limit the effect of time on the reporting behavior of firms, the tax-holiday period had to have commenced during the last 10 years. Fourth, the firms were not eligible for any extended tax holidays after the expiration of the initial five-year holiday. Finally, to control for corporate characteristics and audit risk, firms had to belong to the Class B category.⁸ To minimize the selection bias, the tax bureaus selected firms from Class B at random when the first four criteria were satisfied. As the tax bureaus were not informed of the specific purpose of the study, there is little reason to believe that they intentionally included or excluded particular cases in the sample.

As a result, a total of 112 sample firms that fall in the same calendar years (i.e. 1998–1999 and 2001–2002) were identified for panel analysis. The relationships among the financial statement account balances were reconciled for consistency and reliability. To examine whether the firms had altered their reported discretionary accruals in light of changes in tax rates, accruals for four years were computed and pooled for the regression analysis. These 4 years cover 2 years in which there appears to be a tax motivation to manage earnings (i.e. years 2 and 5 in Fig. 1), and 2 years in which it appears that this

⁶ Specifically, local tax bureaus in the Special Economic Zones and Coastal Open Cities were contacted for the required data. However, the majority of the sample firms were obtained from the tax bureaus of five coastal open cities. The tax bureaus were assured of complete confidentiality because no firm identity was required, and they extracted account data directly from the financial statements of the firms and provided demographic information about the sample from their company profile database.

⁷ Because accruals cannot be computed without a lagged year, six consecutive years of data are needed to compute the accruals for 4 years (i.e. years 2, 3, 5 and 6 in Fig. 1).

⁸ To facilitate the selection of tax audits, most large tax bureaus in China have developed computer programs to classify FIEs into three audit classes according to the firm's perceived likelihood of tax avoidance and evasion (Chan & Mo, 2000). Class "A" firms are "good" taxpayers that are subject to tax audits every two years, class "C" firms are taxed based on a deemed profit rate because they do not keep a full set of books for audit, and class "B" firms represent the majority of FIEs and are subject to annual audit when resources permit.

incentive is not present (years 3 and 6). This design facilitates the comparison of the changes in accrual estimates on an aggregate basis.

3.2. Estimation of discretionary accruals

In this research, the measurement of current accruals is limited to tax-related items over which the management has discretion. Discretionary current accruals are the difference between the reported current accruals and the expected current accruals, where the expected current accruals are a function of a change in sales (Jones, 1991). The discretionary current accruals for each of the 112 firms over the four-year period are estimated using the residuals of a covariance model that regresses tax-related current accruals on the change in sales and dummy variables that represent each firm and year (Guenther, 1994; Jones, 1991). This model can be written as follows.

$$CA_{it}/ASSETS_{it-1} = b_0(1/ASSETS_{it-1}) + b_1(\Delta SALES_{it}/ASSETS_{it-1}) + \sum_{j=1}^3 b_j YR_j + \sum_{k=1}^{111} b_k FIRM_k + e_{it} \quad (2)$$

where $\Delta SALES$ is the change in sales for firm i between year t and $t - 1$. Current accruals (CA) in year t are computed for each firm i over the four-year period. CA and $\Delta SALES$ are deflated by lagged total assets to reduce heteroscedasticity. The YR-dummy variables, which are coded “one” for year j ($j = 1-3$), measure the time effect for each of the 4 years, and the FIRM variables, which are dummy-coded one for firm k ($k = 1$ to 111), measure the firm effect for each of the 112 firms. The prediction error ε , or the difference between the reported current accruals and the expected current accruals, can be interpreted as the portion of the accruals that are “managed.”

To test whether changes in discretionary accruals are systematically correlated to changes in tax rates, discretionary accruals are regressed on a dummy variable that separates the observations on the basis of whether they were incurred before or after the tax-rate increase. This can be written as follows.

$$DA_{it} = \beta_0 + \beta_1 BEFORE_{it} + \beta_2 INDUSTRY_i + \beta_3 JV_i + \beta_4 OWNERSHIP_i + \beta_5 SIZE_{it} + \beta_6 EXEMPTION_i + \mu_{it} \quad (3)$$

where DA is the estimate of discretionary accruals for each observation as described earlier in this section, and BEFORE is dummy-coded as “one” if the observation is in the year before the tax rate increase (years 2 and 5 in Fig. 1), and “zero” otherwise. As BEFORE captures the years in which there appears to be an incentive to manage earnings to take advantage of lower tax rates, this variable is expected to be significantly and positively signed (which means that firms are likely to make income-increasing accrual changes in these 2 years).

Five additional variables are included in the equation to control for the effect of corporate characteristics on discretionary accounting practices. As industry affiliation, form of investment, and ownership control affect tax noncompliance (Chan & Mo, 2000),

the three dummy variables of INDUSTRY (manufacturing versus others), JV (joint ventures versus wholly foreign-owned enterprises), and OWNERSHIP (manager-controlled versus owner-controlled firms) are included in the model. In addition, a continuous SIZE variable (which takes the logarithm of the firm's year-end total assets) is used to control for the effect of firm size on earnings management (Watts & Zimmerman, 1978). Finally, as some firms may be less sensitive to the amount of tax paid overseas if the country in which their parent company is located operates a tax credit, rather than an exemption system, a dummy variable EXEMPTION is used to control for this confounding effect.

4. Empirical results

4.1. Descriptive statistics

All of the sample firms are located in the designated areas that are subject to the reduced tax rate of 15% in the post-holiday period. Manufacturing (69%), commerce (14%), and service (10%) are the main industries in which the sample firms operate. Sixty-seven percent of the sample are joint ventures and the remainder are wholly foreign-owned enterprises. Hong Kong and Taiwan are the main sources of foreign investment, followed by the United States, South Korea, Singapore, and the United Kingdom. The sample firms have average assets (sales) of US\$12 million (US\$10 million) over the test period, and all started their tax holidays in 1997. The mean age at which the sample firms started to pay taxes is about six years after the commencement of business.

4.2. Univariate and multivariate results

Table 1 presents the mean current accruals for Eq. (1). The mean value of current accruals is 4.22% of total assets for all firms over the four-year period. On average, the sample firms report mean accruals of 6.77% of assets for the years before the increase in tax rates, which is 5.14% higher than the accruals that are reported for the years in which tax-rate increases are in effect. The results also reveal higher changes in accounts

Table 1
Mean current accruals before and after tax-rate increases ($n=448$)

	Pooled	Before tax-rate increases	After tax-rate increases	Mean diff. (p -value)
Current accruals/total assets	0.0422 (0.203) ^a	0.0677 (0.231)	0.0163 (0.120)	0.0514 (0.006) ^b
Natural log of assets	4.5944 (0.474)	4.5850 (0.472)	4.6039 (0.473)	−0.0189 (0.053)
ΔAccounts receivable/total assets	0.0223 (0.121)	0.0342 (0.113)	0.0104 (0.123)	0.0238 (0.018)
ΔInventory/total assets	0.0254 (0.190)	0.0386 (0.196)	0.0120 (0.115)	0.0266 (0.012)
ΔAccounts payable/total assets	0.0037 (0.041)	0.0035 (0.057)	0.0041 (0.033)	−0.0006 (0.236)
ΔAccrued expenses/total assets	0.0018 (0.008)	0.0016 (0.007)	0.0020 (0.008)	−0.0004 (0.249)

^a Standard deviations.

^b t -tests of the differences in the means.

Table 2
Discretionary current accruals before and after tax-rate increases (*n*=448)

	Before tax-rate increases		After tax-rate increases		Mean and median differences	
	Mean	Median	Mean	Median	Mean	Median
Discretionary accruals	0.0098	0.0075	0.0021	0.0019	0.0077	0.0056
(two-tailed <i>p</i> -value)	(0.009) ^a	(0.018) ^b	(0.220) ^a	(0.307) ^b	(0.011) ^c	(0.034) ^d

Discretionary accruals are computed as the error term from the following regression.

$$CA_{it}/ASSETS_{it-1} = b_0(1/ASSETS_{it-1}) + b_1(\Delta SALES_{it}/ASSETS_{it-1}) + \sum_{j=1}^3 b_j YR_j + \sum_{k=1}^{111} b_k FIRM_k + e_{it}$$

where $CA_{it} = (\Delta AR_{it} + \Delta INV_{it}) - (\Delta AP_{it} + \Delta AE_{it})$

where
 CA_{it} =current accruals for firm *i* in year *t*
 ΔAR_{it} =the change in accounts receivable for firm *i* from year *t*–1 to *t*
 ΔINV_{it} =the change in inventory for firm *i* from year *t*–1 to *t*
 ΔAP_{it} =the change in accounts payable for firm *i* from year *t*–1 to *t*
 ΔAE_{it} =the change in accrued expense for firm *i* from year *t*–1 to *t*
 $ASSETS_{it-1}$ = total assets for sample firm *i* in year *t*–1
 $\Delta SALES_{it}$ = the change in sales for firm *i* from year *t*–1 to *t*
 YR_j = 1 for year *j* (*j*=1–3), and 0 otherwise
 $FIRM_k$ = 1 for firm *k* (*k*=1–111), and 0 otherwise
F-statistic=5.77, *p*=0.003, adjusted *R*²=0.080, Durbin-Watson statistic=2.084

^a One-sample *t*-tests of the differences in the means.
^b One-sample Wilcoxon signed rank tests of the differences in the medians.
^c Two-sample *t*-tests of the differences in the means.
^d Wilcoxon two-sample tests of the differences in the medians.

receivable and inventory and lower changes in accounts payable and accrued expenses for the years preceding tax-rate increases.

Table 2 reports summary statistics for the regression of Eq. (2).⁹ The estimated discretionary accruals for each sample firm over the four-year period are separated on the basis of whether they were incurred before or after the tax-rate increase. Before the tax rate increase, the firms reported mean (median) discretionary current accruals of 0.98% (0.75%) of total assets, whereas after the rate increase the firms reported mean (median) discretionary accruals of 0.21% (0.19%) of total assets. Without knowing whether the observations are normally distributed, the change in abnormal accruals is tested using a

⁹ The equation assumes that the residual is composed of a time effect and a firm effect. Because the equation is a cross-sectional time-series regression, multicollinearity among the regressors, firm-wise heteroscedasticity, and serial correlation over time may plague parameter estimation (Baltagi, 1995). An examination of pairwise correlations indicates that no two or more variables are highly correlated with each other. Furthermore, a plot of the squared residuals against squared total assets and estimated dependent variable indicates absence of systematic pattern. Thus, deflating sales by total assets appears to have corrected for heteroscedasticity caused by differences in firm size. The Durbin-Watson statistic is close to two, indicating that first-order serial correlation of the residuals does not appear to be a problem (Pindyck & Rubinfeld, 1998).

Table 3
OLS regression of discretionary accruals on the timing of tax-rate increases and the control variables ($n=448$)

	Expected sign	Coefficient	<i>t</i> -stat.	<i>p</i> -value
Intercept		0.0289	0.183	0.604
BEFORE _{<i>it</i>}	+	0.0103	2.125	0.019**
INDUSTRY _{<i>i</i>}	?	0.0020	0.287	0.566
SIZE _{<i>it</i>}	–	–0.0045	–1.904	0.047**
JV _{<i>i</i>}	–	–0.0028	–0.851	0.382
OWNERSHIP _{<i>i</i>}	–	0.0017	0.195	0.664
EXEMPTION _{<i>i</i>}	–	–0.0020	–0.835	0.414

F-statistic=7.20, $p=0.001$, adjusted $R^2=0.112$, Durbin-Watson statistic=2.156

$$DA_{it} = \beta_0 + \beta_1 \text{BEFORE}_{it} + \beta_2 \text{INDUSTRY}_i + \beta_3 \text{SIZE}_{it} + \beta_4 \text{JV}_i + \beta_5 \text{OWNERSHIP}_i + \beta_6 \text{EXEMPTION}_i + \mu_{it}$$

where

DA _{<i>it</i>}	=	estimated discretionary accruals for firm <i>i</i> in year <i>t</i>
BEFORE _{<i>it</i>}	=	1 if firm <i>i</i> is in the year before the tax rate increase, and 0 otherwise
INDUSTRY _{<i>i</i>}	=	1 if firm <i>i</i> is in the manufacturing industry, and 0 otherwise
SIZE _{<i>it</i>}	=	natural log of total assets for firm <i>i</i> in year <i>t</i>
JV _{<i>i</i>}	=	1 if firm <i>i</i> is a joint venture in year <i>t</i> , and 0 otherwise
OWNERSHIP _{<i>i</i>}	=	1 if firm <i>i</i> is sourced from Hong Kong or Taiwan in year <i>t</i> , and 0 otherwise
EXEMPTION _{<i>i</i>}	=	1 if the firm's parent company uses a tax exemption system, and 0 otherwise

**Significant at the 5% level.

parametric *t*-test of the mean and a nonparametric Wilcoxon test of the median. Although the results of the *t*-tests and signed rank tests indicate that the central tendency is significantly positive for the sample before the tax-rate increase, the results of the same measures are not significantly different from zero for the sample after the tax-rate increase. A comparison of the mean (median) accruals between the two groups indicates that the differences in both the means and the medians are significant at the 5% level. Taken at face value, these results suggest that the magnitude of accruals is related to the level of tax rate in a way that is consistent with tax-motivated income shifting behavior.

Table 3 provides the results for Eq. (3), which formally tests the hypothesis of whether discretionary accruals are higher in the periods before the tax-rate increase. The model is significant at the 1% level, which indicates that it is well specified. All of the correlations among the independent variables are below 0.597 and variance inflation-factor values are all less than two, which indicate that multicollinearity is unlikely to have affected the results. The BEFORE dummy measures the incremental ability to explain the remaining cross-sectional, intertemporal variation in residuals from Eq. (2).

As expected, BEFORE is significantly and positively signed.¹⁰ The coefficient of BEFORE indicates that firms in the years before the tax-rate increase report discretionary accruals that are, on average, 1.03% higher than the discretionary accruals that are reported by firms in the years in which the tax rate increased. Illustrated in terms of economic effects, ceteris paribus, a 15% spread in tax rates allows firms to save taxes that equate to

¹⁰ To eliminate potential understated standard errors in a pooled, cross-sectional regression, the model in Eq. (3) was estimated separately for each of the two tax holiday periods (between years 2 and 3 and between years 5 and 6 in Fig. 1). The results are consistent with the pooled estimation.

approximately 0.15% of their total assets. Although Chan and Mo (2000) find that firms are most compliant in the tax-holiday period, the results of this study demonstrate that firms have a strong incentive to minimize their tax burden even when they are in the tax-holiday period. Furthermore, the coefficient of SIZE is significantly negative at the 5% level, which suggests that larger firms may be more sensitive to political costs and thus more likely to use accruals that decrease their financial-statement income (Watts & Zimmerman, 1978).

5. Conclusion

Tax concessions are by far the most popular type of tax inducement to be employed in developing economies. This study investigates whether foreign investors in China's developing economy manage accounting earnings to take advantage of the lower tax rates that are available during tax-holiday periods. Evidence of earnings management is examined by focusing on discretionary current accruals, which are expected to have a significant effect on taxable income. The study develops the hypothesis that firms will make income-increasing accruals in the year before a tax-rate increase, and the results, which indicate that firms adjust their discretionary accruals in anticipation of changes in tax rates, are consistent with such income-shifting behavior. Evidence from this study may be of interest to tax policymakers in enforcing tax rules that are designed to prevent abusive tax avoidance. For example, given that changes in tax rates create incentives for firms to record transactions in one period rather than another, government tax inspectors should closely scrutinize the exact timing of transactions in the periods surrounding the tax-rate revision. The results also have implications for external auditors, who often face conflicting demands to give tax minimization advice on the one hand and to detect material cases of client earnings management on the other.

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Ownership, board structure, and performance in continental Europe

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Abstract

This study examines the empirical validity of claims that the composition of boards of directors and ownership structures affect firms' profitability ratios (ROE, ROA, MTB) using data from 87 European firms, which were foreign U.S. registrants during 2000–2001. Results indicate a strong positive relation between the level of relational ownership and profitability ratios, and between the portion of independent directors on the board and profitability ratios. No strong relation was found between the portion of inside directors or level of managerial ownership and profitability in continental European companies.

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Keywords: International corporate governance; Profitability

1. Introduction

During the 1990s, the process of economic integration was heightened by the creation of different unions (European Union, NAFTA, etc.), the collapse of the Soviet system, and the surge in global economic activities. These include mergers among large corporations, the flow of capital, goods, and services across national borders, the competitive pressures of globalization, privatization, and the growth and diffusion of shareholding. All these activities have created a need to understand national corporate-governance practices and their association with the financial positions of the firms (Alexander & Archer, 2001; Biddle & Saudagaran, 1991; Bushman & Lessard, 1992; Bushman & Smith, 2001;

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Hermalin & Weisbach, 1988, 2002; Hoskinsson, Yiu, & Kim, 2000). The theoretical and empirical literature in corporate governance considers the relationship between corporate performance and ownership, or *structure of boards of directors (BOARD)*, mostly using only two of these variables at a time. For example, Hermalin and Weibach (1991) and McAvoy, Cantor, Dana, and Peck (1983) study the correlation between board composition and performance, while McConnel and Servaes (1990), Hermalin and Weibach (1991), Himmelberg, Hubbard, and Palia (1999), and Demsetz and Villalonga (2001) scrutinize the relationship between managerial ownership and firm performance.

In this study, I analyze the joint relationship between both ownership and composition of the board and performance in different countries. The main objective of this paper is to examine the empirical validity of the claims that the composition of the board and ownership structure affects a firm's profitability after considering the mechanisms by which a European company is directed and controlled (as described in European Corporate Governance Codes). The sample used for this study represents a set of continental European companies listed on U.S. stock exchanges. The main contribution of such empirical analysis lies in the area of relative efficacy of the governance systems of major world economies.

Additionally, decision-makers (investors and creditors) understand the importance of the rules and norms of corporate governance for the success of market economies. According to the McKinsey Investor Opinion Survey (2000), the growing interest in corporate governance may reflect an understanding that equity investors, whether foreign or domestic, are placing a high priority on the quality of corporate governance when making investment decisions. All other things being equal, investors are willing to pay more for a company that is well governed.

The recent dramatic acceleration in the globalization of capital markets has increased the number of cross-listings. It is, therefore, more important than ever for the investors who use financial reports of foreign companies to assess the association between corporate-governance mechanisms and performance (Bushman & Smith, 2001). While there has been much work to date on the relationship between the composition of the board of directors, ownership concentration, and profitability for U.S. publicly traded companies,¹ little work has addressed similar issues for foreign firms that are U.S. registrants.² As American capital markets become more international, understanding national governance practices and their effects on the financial position of a firm gains more relevance.

This paper also has the potential for broader implications. The concern of users of accounting information with the governance practices around the world is magnified by the absence of harmonization of accounting standards. Knowledge of existing differences, therefore, is important for policy debates. Studies like this one have the potential to foster the creation of a successful global market by helping to establish the prerequisites for accounting harmonization.

¹ Unfortunately, prior research did not establish a definite relation between corporate governance and a firms' performance.

² 48% of the listed companies on the NYSE and 43% on NASDAQ were foreign in 2003.

The results presented here partially support the empirical validity of the claims that the composition of the board of directors and ownership structure affect the firms' profitability measures (ROE, ROA, MTB). As expected, the results of this study show a strong positive relationship between profitability ratios and each of the two governance factors: the proportion of independent directors and level of institutional ownership. However, the results do not show a strong relationship between the proportion of inside directors and profitability in continental European companies.

The remainder of the paper is organized as follows: prior research is discussed in Section 2, European corporate-governance codes are analyzed and hypotheses are developed in Section 3, and the model is described in Section 4. The description of variables used in the test is also presented in Section 4. Section 5 describes the sample, Section 6 examines the statistical results, and concluding remarks are provided in Section 7.

2. Prior research

The extant literature on corporate governance, which is mostly about U.S. firms, considers the relationship between corporate ownership-structure, the board's of directors composition, and corporate performance. A substantial stream of literature on corporate governance goes back to the argument of Berle and Means (1932) that corporate managers lack accountability and therefore corporations need to establish monitoring systems to oversee them. Such an argument was further propagated by Jensen and Meckling (1976).

2.1. Prior research on the relation between board composition and firm performance

Prior studies can be divided into two categories. The first category looks into the effect of board composition on actions such as CEO replacement and tender-offer bids (Byrd & Hickman, 1992; Weisbach, 1988). This approach, however, does not explain how board composition affects firm performance. The second category examines the correlation between board composition and firm performance, which allows examination of the firm's "bottom line" but involves less tractable and noisy performance measures. Neither of these categories of prior research established a consistent relationship between board composition and the firms' performance. While Hermalin and Weibach (1991) and McAvoy et al. (1983) report no significant same-year correlation between board composition and performance, Yermack (1996) suggests that a high percentage of independent directors leads to the worst performance, and Klein (1998) suggests that a high percentage of outside directors has the same negative effect.

Scholars (Bowen, DuCharme, & Shores, 1995; Harris, Lang, & Moeller, 1994) who study governance in Continental European Union Members (CEUM) suggest that the main goal of CEUM company managers is to satisfy various constituents of the firm. This leads to significant differences in financial ratios and stock market valuation of accounting data between CEUM and firms in the United States (Ball, Kothari, & Robin, 2000; Joos & Lang, 1994). In this respect, it is questionable whether the positive relationship between outside directors and firm performance predicted by agency theory (Baysinger & Butler,

1985; Demsetz & Lehn, 1985; Fama, 1980; Pearce & Zahra, 1992; Ezzamel & Watson, 1993) will be supported in the CEUM. In contrast to agency theory, stewardship theory (Donaldson, 1990; Donaldson & Davis, 1994) might be more applicable in this setting. This would be consistent with the evidence that inside directors have a positive effect on corporate R&D costs and better performance based on improved strategic innovation (Baysinger, Kosnik, & Turk, 1991; Kochhar & David, 1996).

There is no consensus in prior research as to the endogeneity of board composition. The factors that affect board composition are not well understood and the composition of the board is known to be related to a firm's ownership structure (firms with high inside ownership have fewer independent directors (Bhagat & Black, 2001). Several empirical tests were performed to address this issue with inconsistent results. Hermalin and Weisbach (1988) and Bhagat and Black (2001) report that the proportion of independent directors increases slightly following a year of poor performance. Klein (1998), on the other hand, finds no such tendency whereas Denis and Sarin (1999) report that a successful year is followed by a slight increase in the proportion of independent directors. Thus, the factors driving board structure consist of a firm's performance, firm growth, industry growth, or market globalization, but there is not a clear delineation of the relative weight of each factor.

Additionally, it is argued that good governance is associated with role separation: i.e., the positions of chairman of the board and CEO are held by different individuals. Baliga, Moyer, and Rao (1996), Berg and Smith (1978), and Brickley and Coles (1997) view the power concentration as impeding the supervisory ability of the board, because a leader faces a significant conflict of interest. Therefore, they advocate separation of the leadership roles to increase the independence of the board and to eliminate a source of conflict.

2.2. Prior research on the relationship between corporate ownership and a firm's performance

An extensive literature addresses the agency problems in connection with corporate governance by looking at the relationship between ownership structure and performance. Ownership is measured in several different ways such as managerial ownership (Cho, 1998), CEO ownership (Demsetz & Villalonga, 2001), and block-holders ownership (relational investors) (Jensen, 1986; Mikkelsen & Partch, 1997). The last measurement has a special importance in CEUM, because historically European companies have influential stockholders who own large blocks of equity for long periods of time and who actively monitor a firm's performance.

Managerial ownership is traditionally viewed as providing a direct economic incentive for managers to engage in active monitoring, and in effect, aligning ownership and control through meaningful directors' stock ownership (Bhagat & Carey, 1999), but perhaps encouraging risk-taking (Demsetz, 1983). There is, however, no consensus as to the nature of the relationship between ownership and performance. Himmelberg et al. (1999) provide evidence that the ownership structure may be endogenously determined by a firm's contracting environment, which differs across firms. Seyhun (1998) claims that managers adjust their ownership to reflect the degree of divergence between market expectations and insider information on a firm's future performance.

In CEUM companies, managers have limited discretion due to relational investing. Many scholars believe that relational investors serve as a substitute for corporate control (Jensen, 1986; Mikkelsen & Partch, 1997), because they own large stakes for long periods of time and, thus, can overcome two problems: (1) the collective-action problem that makes small shareholders passive and (2) the information-asymmetry problem that makes small shareholders myopic. According to Jacobs (1991) and Porter (1992), a potential concern for governance systems dominated by relational investors is the over emphasis on short-term profitability. Thus, relational investing may be viewed as one of the complementing governance mechanisms that contribute to the monitoring of a firm's performance. On the other hand, relational investing could discourage risk-taking because those investors in Europe may very well be the company's creditors. Moreover, there is some evidence that institutional investors have their own agency problems and, thus, maximizing the value of the portfolios they manage may not be their primary aim (Black, 1992a, 1992b; Black & Coffee, 1994).

To determine the impact of block-equity holders on a firm's performance, the literature considers different measurements of relational investing such as large block-holdings by CEOs or family-owned companies. However, McEachern (1975) and Holderness and Sheehan (1985) do not find strong evidence that firms with controlling shareholders are more profitable than manager-controlled firms. An alternative measurement is majority or control block-holding by outsiders, who may be institutional investors (Wahal & McConnel, 1999), or others (Bhagat & Jefferis, 1991; Fleming, 1993). There is considerable variation in the results here as well. While Mikkelsen and Ruback (1985) report that large, external block-holding affects the company's rate-of-return positively, McEachern (1975) finds weak evidence that firms with controlling shareholders are more profitable than others. Morck, Shleifer, and Vishny (1989) and Hermalin and Weibach (1991) find the relationship between ownership and performance to be nonmonotonic. They argue that, at low levels of inside ownership (below 5%), the incentive effect would lead to a positive relation between ownership and performance. A negative relation with performance is observed in the region between 5% and 25% inside ownership, due to the entrenchment effect, and becomes positive again beyond the 25% ownership level. This is due to the dominant effect of ownership incentives. However, McConnel and Servaes (1990) claim that the above findings are not robust.

3. Corporate-governance codes in CEUM³

Generally, corporate governance involves the mechanisms by which a business enterprise is directed and controlled.⁴ It should be noted that the legal origins and corporate-governance practices employed by CEUM are quite distinct from those used by their American counterparts (Appendix A). The greatest distinctions in corporate-governance practices appear to result from differences in law rather than differences in

³ Internet addresses for governance codes analyzed here can be seen in Appendix A.

⁴ Corporate governance is distinct from the topics of business management and corporate responsibility.

the recommendations emanating from the corporate-governance codes discussed here.⁵ The codes⁶ tend to express a relatively common view of what good governance is and how to achieve it. Notwithstanding legal differences, corporate-governance practices in CEUM appear to be converging to more similarities than differences. While corporate-governance codes put forward by members of the EU investment community are voluntary in nature, they have significant influence on corporate-government practices because of the economic power in capital markets and strong investor's voting rights.

The CEUM codes of corporate governance can be categorized as seeking to improve the value of shareholders' ownership by improving the quality of corporate-governance mechanisms. Generally, the codes express a relatively small range of objectives, such as the quality of governance improvement at the level of boards of directors, competitiveness and access to capital, and performance improvement. As described below, the codes issued by different EU nations are in general agreement on issues related to the importance of the structure and composition of boards of directors, as well as ownership structure and its influence on profitability.

3.1. The effect of ownership type on profitability in Europe

The laws and regulations concerning equitable treatment of shareholders, including minority rights, vary between the United States and CEUM. In part, this reflects differences in types of company ownership. For example, in Austria, Belgium, Germany, and Italy, more than one half of listed industrial companies have large stockholders who own at least 50% of the company. This phenomenon is far less common in the United States. In continental Europe where ownership is less dispersed, control rights are not fully separated from ownership. Whenever a large shareholder or consortium maintains a control stake (by holding a majority of stock outright or by retaining disproportionate voting rights or other preferences), concern is directed toward ensuring the fair treatment of minority shareholders. These codes generally call for shareholders to be treated equitably, avoiding or disclosing disproportional voting rights and the removal of barriers to shareholder participation in general meetings, whether in person or by proxy.

The degree to which CEUM firms have relied on equity markets as funding sources also varies significantly from the practice in the United States, although equity financing appears to be gaining more importance in CEUM. The need to separate the capital and credit markets has not been viewed as a prerequisite for financial stability. The German Federal government does not have much direct influence on corporations or banks, except through government ownership of banks, which has been held at high levels.⁷ In contrast, the financial and industrial systems in France have been dominated by the central government, which controls market and financial institutions and can ensure that capital is directed to priorities set forth in "indicative planning" investments. There are many quasi-governmental

⁵ Every CEUM, except Austria, has at least one code mostly issued after 1997.

⁶ For the purpose of this study, a "corporate governance code" is defined as a non-binding set of principles, standards, or best practices related to the internal governance of corporations, issued by a collective body that is neither governmental nor regulatory in nature.

⁷ State governments (*Länder*) and regional bank associations own more than 50% of the banks.

financial institutions, such as *Caisse des Depots et Consignations*, positioned between depositors and borrowers. Traditionally, the French government has the highest level of corporate shareholding in Europe through controlling banks.⁸ Similarly, bank lending in The Netherlands has been a far more important source of financing than stock markets. With less traditional reliance on equity markets for financing, shareholding has been fairly concentrated and stable over time. As a result, all CEUM accounting regimes are mostly stakeholder oriented and insider dominated. Given this structure, the managers' objective function is not necessarily the maximization of the company's stock prices and their compensation is not typically sensitive to it. Thus, in the relational markets, with a significant degree of uniformity in the basic elements of company law, corporate governance, and accounting practices, I do not expect to find that managerial ownership significantly impacts a company's profitability. This is the first hypothesis.

H1o. The level of managerial ownership is not significantly related to the company's profitability.

H1a. The level of relational investor ownership (block-holders and institutions⁹) in CEUM companies is positively correlated with profitability.

Testing Hypotheses 1o and 1a will exclude family-CEO-owned companies due to the different structure of voting rights. According to a 2001 survey of companies in the Euro Stoxx 50 by Die Wertpapier Spezialisten ("DWS," www.source.oecd.org), such companies serve as an example of disproportional voting rights—such as multiple voting rights and golden share rights—while utilizing non-voting shares and other limitations on non-voting rights twice as often. In this regard, codes tend to support a *one share, one vote approach*, although many favor some flexibility. For example, according to OECD Principle II.A, "all shareholders of the same class should be treated equally." However, the annotation explains that preference shares and participation certificates that lack voting rights may be efficient ways of distributing risk and reward; it explains that Principle II is not meant to present an absolute view in favor of one share, one vote in all circumstances (Annotation to OECD Principle II.A). The Peters report (Netherlands) takes a view in line with the flexible approach of OECD Principle II, which is that while the general principle should be one of "proportionality...between capital contribution and influence," priority shares and certificates that result in disproportionate rights may be justified in certain circumstances, including those involving a threatened change in control (Section 5.1).

In addition to the disproportional voting rights, family members in family-owned companies are usually heavily represented on the board of directors and hold most key managerial positions in the company. For this type of company, a strong positive relationship between the profitability ratios and the ownership concentration should be expected to focus on long-run goals of profitability. This leads to the second hypothesis.

H2o. Family ownership is positively correlated with a company's profitability.

⁸ A similar situation can be observed in Spain and Portugal.

⁹ To measure the level of the relational ownership, I use two variables, such as % BLOCK, which represents the level of large block-holdings by outsiders (excluding institutions), and % INST, which represents the level of institutional ownership.

3.2. Internal governance mechanisms in Europe

3.2.1. Board structure, roles, and responsibilities

As shown in Table 1, the use of a unitary versus a two-tier board structure is believed to be a major difference between corporate governance in the United States and most CEUM. While there are structural differences between two-tier (supervisory and managerial boards) and unitary-board systems, there are similarities in actual board practices in that both types of systems recognize a supervisory function and a managerial function. However, the distinction between the two functions tends to be more formalized in the two-tier structure, which appoints a separate executive body. Generally, both the unitary board of directors and the supervisory board (in the two-tier structure) are elected by shareholders. In some countries, employees are given the right to elect some supervisory body members. Typically, both the unitary and supervisory boards appoint the executives—the management board in the two-tier system, or a group of managers to whom the board delegates authority in the unitary system. In addition, both the unitary board and the supervisory board usually have the responsibility of ensuring the appropriate functioning of the financial reporting and control systems as well as compliance with laws and regulations. Each system has its own advantages. The one-tier system may result in a closer relationship and smoother information flow between the supervisory and managerial bodies. The two-tier system, on the other hand, encompasses a clearer formal separation of the supervisory and executive roles. With the movement toward best practice, the benefits that are uniquely attributed to each governance system appear to be lessening.

3.2.2. Board composition

The proposition that boards should consist mostly of independent directors has become conventional wisdom in the United States (Bhagat & Black, 2001; Hermalin & Weisbach, 1988); the insider-dominated board is seen as a device for management entrenchment. In 1998, the Council of Institutional Investors in the United States noted its preference for two-thirds of a company's directors to be independent. While there are no such guidelines

Table 1
Predominant board and leadership structure

State	Board structure	Employees role in supervisory body	Separation of supervision and management	Number of companies	Unions power	Mean for the length of the American public market experience
Austria	<i>Two-tier</i>	Yes	Yes	2	Low	2
Belgium	Unitary ^a	No	Not required	2	Low	2.5
Denmark	<i>Two-tier</i>	Yes	Yes	2	Low	12
France	Unitary ^a	No	Not required	21	High	2.8
Germany	<i>Two-tier</i>	Yes	Yes	12	High	2.8
Italy	Unitary ^b	No	Not required	10	High	6.4
Netherlands	<i>Two-tier</i>	Advisory	Yes	32	Low	7.7
Portugal	Unitary ^a	No	Not required	2	High	4.5
Spain	Unitary	No	Not required	4	High	7.5

^a Other structures are also available.

^b Board of auditors is also required.

in CEUM, corporate-governance codes place a significant emphasis on the need for the board to ensure accountability and to provide strategic guidance. With relational investors monitoring management, the codes still advocate having independent directors to enhance the monitoring. These codes invariably urge the appointment of truly “independent” directors to the supervisory board. “Independence” generally involves an absence of close family ties or business relationships with either company management or controlling shareholder(s). In addition, these companies commonly appoint professors from leading universities as well as former and current employees of the Ministry of Economics and Finance to their boards. While members of these groups are considered outside directors, they may not necessarily be independent. These individuals, however, who are highly qualified, have the ability and interest to monitor the company’s dynamics and to ensure sustained profitability.

Another difference in corporate-governance practices between the United States and CEUM is the role of employees in corporate governance. In Austria, Denmark, and Germany, the employees of companies (of a certain size) have the right to elect some members of the supervisory body in accordance with the codes in effect. In France, company articles *may* provide employees with such a right. In addition, when the employee’s shareholding reaches 3%, French employees are given the right to nominate one or more directors subject to certain exceptions. In some countries, including France and The Netherlands, the employees’ representatives may have the right to attend board meetings, but may not vote. In all other CEUM firms (with the exception of certain Dutch companies with self-selecting boards), it is the shareholders alone who elect all the members of the supervisory body.

As noted earlier, the main goal of CEUM company managers is to satisfy various constituents of the firm. The role of inside directors in a CEUM company is greatly affected by the fact that relational investors, quasi-financial institutions, etc. have a very strong monitoring role there and, as a result, the company’s insiders act congruently with the relational investor’s interests. In this regard, I examine the relationship between the board composition and profitability empirically.

H3a. The portion of independent directors and scholars on the board has a strong effect on the profitability of the company.

H3b. The portion of inside directors does not have a strong effect on the profitability of the company.

3.2.3. *Power concentration on the board*

Governance codes also frequently call for the positions of the chairman of the board and the CEO (or managing director) to be held by different individuals. Codes that relate to two-tier boards also emphasize the need for independence between the supervisory and managerial bodies. In two-tier board systems, the distinct supervisory and management boards are supposed to have their own separate leaderships.¹⁰ For example,

¹⁰ However, it is not uncommon for a retired senior executive to become the chairman of the supervisory board, which may raise issues of independence.

like the unitary board codes, the dual board codes tend to warn against the practice of naming (more than one or two) retired managers to the supervisory board, because it may undermine the supervisory board's independence. The leading role of the chair of the supervisory body is similar in the unitary and the two-tier board systems. For example, as the draft Cromme Commission Report suggests, "the chairman of the supervisory board coordinates work within the supervisory board and chairs its meetings" (§ V.2). In both board systems, it is not unusual for the chairman of the board of directors to also serve as an executive of the company (managing director).

The practice varies from country to country. For instance, the dual code (Belgium) emphasizes the need for "a clear division of responsibilities at the head of a company to ensure a sound balance of power and authority." In France, for decades, the law applying to unitary boards has required that the leadership positions be combined. The Viénot II Report (France) suggested that the law be changed to allow greater flexibility in the unitary board system so that corporations may choose between combining or separating the offices of chairman and chief executive officer. This suggestion has since been embodied in legislation promulgated in May 2001. By contrast, the Preda Report (Italy) and the Olivencia Report (Spain) call for measures to balance the power of the chairman/CEO, but that separating the roles is not among them (Preda Report, 5.2; Olivencia Report, 3.2). Some authors, however, view this leadership structure as impeding the supervisory ability of the board because of a significant conflict of interest (Baliga et al., 1996; Berg & Smith, 1978; Brickley & Coles, 1997).

H4. Power concentration (CEO=CH) negatively affects the supervisory ability of the board and, thus, the profitability of the company.

4. Model and variables used in the model

To investigate the research question of how a given corporate-governance factor affects the level of the company's performance ratios, I estimate the model as follows:

$$\text{ECON_PERF}_{jk} = F(\text{Governance, Control})$$

The variables used in this study are discussed below and are summarized in Table 2.

4.1. Proxies for dependent variables

Three empirical proxies for performance are used in this study: return on assets, return on equity, and market-to-book value of the company. The first two dependent variables are accounting rates of return on total average assets and the book value of owners equity for 2000 and 2001. Accounting-based performance measures are historical reports not directly affected by changes in equity markets and have several limitations. First, they are affected by accounting conventions for valuing assets and revenue recognition. In particular, different methods are applied to value tangible and intangible assets or income as an accrual-based measure, which could be manipulated. Second, reported total assets consist of mixed attributes of current and historic costs,

Table 2

Variables used in the test

Independent variables

Board structure: Companies included in the sample have unitary as well as two-tiered governance systems. Two-tiered systems includes two layers of management, such as BOM—board of management and SB—supervisory board or board of directors

%INDIR—(total number of insiders in the board)/# Total_DIR

Total_DIR—total number of directors in both tiers, when it applies

%INDEP—total number of independent directors/# Total_DIR

%GOV—(number of elite representatives on board)/(total # of directors), where a representative is coded as elite, if he/she has highest qualification and experience serving at high government structures such as parliament, ministry, or university)

*Ownership**Outside shareholder concentration*

%INSTN—(number of shares held by institutions)/(total number of common shares outstanding in 2000 and 2001 fiscal year ends)

%BLOCK—a total percentage of the firms' outstanding shares of block holders who hold at least 5% of the outstanding shares and are not affiliated with management (excluding institutions)

Inside ownership/power concentration

CEO/OW—dummy variable to record the fact that the company is family-owned and CEO is the founder of the firm

MNGOW—the cumulative percentage of ownership in the firm held by insiders managers), who serve on the board (average number of shares owned by all directors/average number of common shares outstanding at 2001 fiscal year end)

CEO/CH—dummy variable to record the fact the CEO of the company is appointed as the chair of the board of directors

Dependent variables

ROA, ROE—accounting returns on total average assets and the book value of the shareholders' invested capital for 2000 and 2001

MTB—market to book ratio=price per share*# of shares outstanding/book value of equity

Control variables

AGE—number of years a given firm's stock has been traded at the NYSE or NASDAQ as of 2000 and 2001

GROWTH—growth rate computed as average percentage change in total assets for 2 years ending before the year of interest

TDEB/TCAP—debt ratio=debt capital (noncurrent liabilities)/debt capital+equity capital

TASSET—logarithm of the company's total assets

while revenues are recorded at current dollars. The market-to-book ratio is used as an alternative that is not affected by these limitations and company's performance shows the extent to which expected future gains are not currently reflected on the books.

4.2. Independent variables

The set of independent variables can be divided into two categories: empirical proxies used to measure *BOARD* composition and empirical proxies used to measure ownership concentration. Proxy measures for the *BOARD* composition are: first, the percentage of corporate insiders, measured by variable %INDIR, computed as the percentage number of

inside directors to total number of directors. Second, to measure the presence of “independent” directors on the *BOARD*, the variable %INDEPD is the percentage of number of independent directors to number of total number of directors.¹¹ Third, to measure the presence of scholars on the *BOARD*, I use the %GOV variable computed as number of scholars to total number of directors. Finally, the variable CHCEO captures the jointness (CHCEO=1) or separation (CHCEO=0) of the chairman of the *BOARD* and CEO.

The empirical proxies used to measure the ownership concentration are: (1) MNGOW, measures the stockholding of companies’ directors; (2) CEOOW, a dummy variable for CEO/family ownership; (3) %INST, percentage of stockholding by the institutions; and (4) %BLOCK, percentage of stockholding by block-holders other than institutional investors.

4.3. Control variables

The four control variables are as follows: (1) firm AGE, the length of time that the firm’s common stock has been traded in American public markets. This variable proxies for the level of stress the company management is under to meet and comply with public capital markets; (2) TDEB/TCAP, measures the capital structure of each company.¹² There are two reasons to control for leverage. Novaes and Zingales (1999) show that the optimal choice of debt from the viewpoint of shareholders differs from that of managers. Additionally, borrowing increases financial risk and the firm’s credit risk; (3) TASSET, the size variable is computed as the logarithm of total assets. The importance of controlling the firm’s size stems from the results of the research (Fama & French, 1995), which documents that small firms, on average, have lower ROE than large firms; (4) GROWTH is computed as the difference in average percentage change in total assets for 2 subsequent years prior to the year of interest.

5. Sample

Initially, this sample included 87 companies from nine European countries (Table 1), which were members of the European Union in 1999. The sample contained all companies from nine CEUM that are traded consecutively on the NYSE during 2000 and 2001.¹³ The data from six companies were not consistently available and the final sample includes only 81 companies. All companies included in the sample prepare their financial statements according to IAS and file 20-F with the SEC. The information

¹¹ “Independence” generally involves an absence of close family ties or business relationships with company management and controlling shareholder(s).

¹² (Source: Compustat). Because CEUM companies mostly rely on accounting measures, the degree of leverage included in the tests should be logically measured in terms of accounting rather than market values.

¹³ Excluding financial institutions and insurances, because they operate under a very different set of rules.

Table 3
Descriptive statistics

Variable	Mean	Median	S.D.
ROE	0.99	0.062	9.55
ROA	0.07	0.02	1.08
MTB	3.66	2.06	6.19
%INDIR	46.97	44.8	16.8
%INDEP	30.97	27.5	14.84
%GOV	44.29	0	6.88
%BLOCK	15.51	7.2	18.89
%INST	31.67	26.1	26.46
CHCEO	0.51	1	0.5
CEOOW	0.21	0	0.41
MNGOW	16.48	1.4	25.39
DEBT/CAP	51.06	35.54	138.14
GROWTH	0.42	0.04	1.7
TASSET	15,171.22	2786.55	26,788.63
AGE	6.16	4	7.49

related to the composition of their *BOARDS* are obtained from their proxy or annual reports.^{14,15}

6. Statistical results

6.1. Descriptive statistics

Table 3 provides descriptive statistics for the variables used in this research. The analysis of the results shows that the three dependent variables are not symmetrically distributed and have a positive skewness. Thus I use median¹⁶ for measurement of performance, $Md_{ROE}=0.062$ and $Md_{ROA}=0.02$.

Independent variables related to the composition of the board of directors indicate that the firms in the sample are dominated by insiders (mean %INDIR#=46.9), with the strong presence of institutions (mean %INST#=31.67). Percentage of independent directors is about 30% (%INDEP=30.97). About one half of the companies in the sample have the same person holding the positions of CEO and chairman of the board (mean CEOCH=0.51), and 21% of the companies are family-CEO-owned. Managerial ownership is also relatively high (mean MNGOW=16.8).

¹⁴ Until 2001, some companies were still submitting 20-F as the paper file. In this case, the company web sites were the primary sources of information, because Edgar does not contain electronically available annual reports.

¹⁵ More detailed information about companies and their characteristics are available upon request.

¹⁶ In this case, median better characterize the distribution, because it is less affected by extreme values.

Table 4
Correlation (Pearson)

	ROE	ROA	MTB	%INDIR	%INDEPD	%GOV	%INSTN	%BLOCK	CHCEO	CEO/OW	MNGOW
ROE	1										
ROA	0.96	1									
MTB	−0.05	−0.06	1								
%INDIR	−0.09	−0.12	0.07	1							
%INDEPD	0.07	0.10	0.03	−0.21	1						
%GOV	0.11	0.12	−0.08	−0.16	0.18	1					
%INST	0.08	0.07	0.03	−0.17	0.09	0.03	1				
%BLOCK	−0.02	0.03	−0.06	0.15	−0.32	−0.05	−0.29	1			
CHCEO	−0.11	−0.14	0.03	0.11	−0.01	0.04	−0.01	0.05	1		
CEOOW	−0.08	−0.06	0.05	0.34	−0.34	−0.16	−0.18	0.35	0.11	1	
MNGOW	−0.10	−0.08	0.04	0.42	−0.14	−0.10	−0.16	0.33	0.04	0.71	1

The companies in the sample have been trading their stocks in American public markets for 5 years on average with 20% having 1–2 years of experience and only 3.2% having 15 years or more.¹⁷

6.2. Univariate tests

Table 4 reports Pearson product-moment correlations among all variables and shows several significant correlation coefficients. First, the levels of institutional (%INST) and block-holder (%BLOCK) ownerships are negatively correlated ($r = -0.29$). Second, the level of independent directors on the board is inversely related to CEO/family ownership ($r = -0.34$) and to the level of insiders on the board ($r = -0.21$). Third, companies with a high level of inside directors (%INDIR) have a higher level of managerial ownership (MNGOW), $r = 0.42$, and are more likely to be family-owned ($r = 0.71$). Furthermore, the level of block-holder ownership has a positive relation with the level of managerial ownership ($r = 0.33$).

6.3. Multivariate tests

Table 5 provides ordinary least-squares (OLS with robust standard errors)¹⁸ regression results for each of ROE, ROA, and MTB on the independent variables.¹⁹ These variables explain about 10% of the cross sectional variation in ROA, 17% of the cross-sectional variation in ROE, and 24% of the cross sectional variations in MTB. Two of the models are significantly different from zero at the 0.05 significance level ($F_{\text{for MTB}} = 3.84$, $df [12$,

¹⁷ KLM Royal Dutch—44 years, Benetton Group, Italy—23 years, Royal Dutch Petroleum—47 years, etc. The highest surviving rate on the American public market belongs to Dutch companies (6 out of 32 companies with 10 or more years of experience).

¹⁸ The Shapiro–Wilk normality test was performed and the outliers with unusually large errors were omitted. OLS was used on the remaining observations to produce α -trimmed least-squares estimate (Maddala, 1997, pp. 305–08).

¹⁹ The multivariate tests run for 2 years separately yield similar results.

Table 5

OLS regression (with robust standard errors)

		ROE	ROA	MTB
Intercept	β	0.09	0.92	2.09
	(<i>t</i>)	–0.64	(1.98*)	–1.61
%INDIR	β	0.00	0.00	0.04
	(<i>t</i>)	(–0.31)	(–0.91)	(2.27*)
%INDEP	β	0.12	0.02	0.03
	(<i>t</i>)	(1.94*)	(2.0*)	–1.75
%GOV	β	0.01	0.01	–0.01
	(<i>t</i>)	–1.16	–0.74	(–0.35)
%INST	β	0.07	0.06	0.03
	(<i>t</i>)	(1.96*)	(1.93*)	(1.89**)
%BLOCK	β	0.00	0.00	–0.02
	(<i>t</i>)	(–0.26)	(–0.24)	(–1.39)
CHCEO	β	–2.66	–0.34	0.68
	(<i>t</i>)	(–1.78**)	(–1.9*)	–1.33
CEOOW	β	–0.60	–0.17	–2.18
	(<i>t</i>)	–0.59	(–0.57)	(–2.32*)
MNGOW	β	0.00	0.00	0.01
	(<i>t</i>)	(–0.5)	0.00	–0.87
TDEBT/TCAP	β	0.00	0.00	0.01
	(<i>t</i>)	(–0.19)	(–0.11)	–5.20
GROWTH	β	0.01	0.02	–0.03
	(<i>t</i>)	–0.41	–0.54	(–0.26)
TASSET	β	0.00	0.00	0.00
	(<i>t</i>)	–0.81	(1.88*)	–0.05
AGE	β	0.02	0.01	0.05
	(<i>t</i>)	(3.81*)	(2.39*)	–1.42
R^2	β	0.17	0.11	0.24
Adj. R^2	β	0.09	0.07	0.18
# Observ.	β	141.00	154.00	155.00

* Significant at 0.05 level.

** Significant at 0.1 level.

142]; $F_{\text{for ROE}}=2.23$, df [12, 128]), and the third equation represents a set of regression coefficients that are statistically significantly different from zero at the 0.10 significance level ($F_{\text{for ROA}}=1.5$ df [12, 141]).

Consistent with H1, %INST is strongly and positively correlated with ROE ($t=1.94$, $P>[t]=0.05$) and ROA ($t=1.93$, $P>[t]=0.05$), and %INST is positively correlated with the MTB ratio ($t=1.89$, $P>[t]=0.06$). These results support the idea that in the European market, which is characterized by a relatively weak market for corporate control, relational investing serves as the complementing governance mechanism in monitoring a firm's performance (Jensen, 1986; Mikkelsen & Partch, 1997).

The results do not support the proposition regarding the strong association between %BLOCK and any of the tested profitability ratios, which is consistent with Meecham's (1975) findings. A competing explanation is that relational investors have their own agency problems and may not aim at maximizing the value of their portfolios (Black, 1992a, 1992b; Black & Coffee, 1994).

As predicted in H1a, the level of managerial ownership does not significantly impact the company's profitability. It is consistent with the institutional features of CEUM's accounting regimes and in their stakeholders' orientation since more than half the listed industrial companies have holders of stocks who account for 50% or more of the company's ownership. Because control rights are not fully separated from ownership, information asymmetry is reduced and relational investors act as a counterweight to managers' decisions in cases when managers' and stakeholders' interests are not aligned.

Contrary to the prediction in H2, family-CEO ownership has strong and negative correlation with MTB ($t = -2.32$, $P > [t] = 0.02$) and marginally negative correlation with ROE. It is possible that family-CEO entrenchment is negatively affecting the company's profitability.

As predicted by H3a, the percentage of independent directors on the board has a significant positive correlation with the company's profitability ($t_{ROE} = 1.94$ and $t_{ROA} = 2.0$) and only marginally with the MTB ratio ($t_{MTB} = 1.75$). These results suggest that the theoretical predictions of agency theory on a positive relationship between outside (independent) directors and firm performance (see for example Baysinger & Butler, 1985; Demsetz & Lehn, 1985; Fama, 1980; Pearce & Zahra, 1992; Ezzamel & Watson, 1993) are also applicable in the European environment as well.

Of the negative results, the presence of scholars on the *BOARD* (%GOV) does not have a significant impact. The advertisements provided by the companies regarding scholars' roles in governance are mostly good marketing. Additionally, as predicted by H3b, the percentage of inside directors does affect ROA or ROE, significantly, which is consistent with the above discussed monitoring role of the relational investors associated with managers' limited discretion in CEUM companies.

As H4 predicts, the power concentration in the company (CEOCH) is negatively correlated with the company's profitability ($t_{ROE} = -1.78$, $P > [t] = 0.07$, $t_{ROA} = -1.9$, $P > [t] = 0.04$, $t_{MTB} = -2.32$, $P > [t] = 0.02$), which is consistent with the proposition that separation of leadership roles increases the independence of the *BOARD* and eliminates a source of conflict (Baliga et al., 1996; Berg & Smith, 1978; Brickley & Coles, 1997).

The results of the test also show that company AGE is strongly associated with ROE ($t = 3.8$, $P > [t] = 0.0002$) and ROA ($t = 2.4$, $P > [t] = 0.018$), which is consistent with the assumption that the longer a company survives in American capital markets, the more likely it is able to meet shareholders' earnings expectations.

6.4. Robustness tests

6.4.1. Multicollinearity

To test for multicollinearity, I computed the variable inflation factor for each variable with Pearson correlation greater than 0.30. The results show that there are no variables included in the tests with $VIF > 3.78$. Thus, multicollinearity does not appear to be a problem for the results.

6.4.2. Normality

To check the OLS residuals for consistency with normality, I use the Shapiro–Wilk test. The results of the test identify the possible presence of a “fat tailed” error distribution.

After excluding the observations with unusually large errors from the test, I still run the regression with robust estimators.

6.4.3. GLS test

To produce more efficient estimators and evaluate the OLS results, I also use generalized least-squares (GLS) regression. The Hausman test for equality of estimates produced by two estimators was used to check for whether the random-effects model is appropriate.²⁰ The results of the Hausman test suggest that, under the null hypothesis of zero correlation between the errors and the regressors, the random-effects model is applicable and its GLS estimator is consistent and efficient (at a significance level $\alpha=0.01$ for ROA ($\chi^2=7.74$, Prob. $>\chi^2=0.56$, $\rho=0.32$) and ROE ($\chi^2=8.94$, Prob. $>\chi^2=0.48$, $\rho=0.29324$). This suggests that, if the null hypothesis is true, both estimators should produce similar results. The results and signs of the GLS test are consistent with those of OLS for all profitability ratios. Therefore, the heteroscedasticity test concludes that the results of the OLS regression are robust.

6.4.4. Nonmonotonic relationship

To test the claim of a nonmonotonic relation between corporate-governance mechanisms and performance, I estimated a piecewise linear regression of the relationship between the profitability ratios and ownership. In compliance with Mork, Schleifer, and Vishny (1989), two kinks (5% and 25%) were chosen as the points of the abrupt changes in the behavior of the relationship. Two independent variables such as MNGOW and %INST were chosen for the test. The results of the test do not provide support for the idea that the nature of the relation between the level of managerial or relational-investor ownership and a company's profitability changes from positive to negative as the level of managerial or institutional ownership changes.

7. Concluding remarks

While there has been seemingly much evidence to date on the relations between the composition of the *BOARD* of directors, ownership concentration, and profitability of publicly traded U.S. companies, little work has been done to examine these issues for foreign U.S. registrants. The globalization of the American public market, however, creates a qualitatively new level of interest in understanding national governance practices and their effect on the financial position of a firm. So far there have been few studies comparing European and U.S. corporate-governance practices. Such studies could help us create and understand a successful global market by helping to establish the prerequisites for the harmonization of accounting practices.

My study has been an exploratory attempt to understand the nature of corporate governance in continental Europe. In this study, I use data from 81 European companies (foreign U.S. registrants) representing a 2-year period (2000–2001) to examine the

²⁰ The random-effects model was chosen because the data are drawn from a large population of U.S. foreign registrants, so the fixed-effect approach is no longer reasonable.

interrelationships between the composition of the boards of directors, ownership concentration, and profitability of CEUM companies. The results indicate a strong positive relation between the level of relational-investors ownership (%INST) and profitability ratios, as well as a strong, positive relation between the portion of independent directors on the board and profitability ratios, but no strong relation between the portion of inside directors or level of managerial ownership and profitability in European companies.

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Appendix A. List of corporate-governance codes relevant to the CEUM

A.1. Belgium

Federation of Belgian Companies (“VBO/FEB”), Corporate Governance Recommendations (January 1998), www.vbo-feb.be, Belgian Banking and Finance Commission (“CBF”), Recommendations of the Belgian Banking and Finance Commission (January 1998). (Now included as Part II of the Dual Code of the Brussels Stock Exchange and the Belgian Banking and Finance Commission, “Corporate Governance for Belgian Listed Companies,” December 1998.) (www.cbf.be/pe/pec/en_ec01.htm).

Brussels Stock Exchange, Report of the Belgian Commission on Corporate Governance (Cardon Report) (December 1998). (Now included as Part I of the Dual Code of the Brussels Stock Exchange and the Belgian Banking and Finance Commission, “Corporate Governance for Belgian Listed Companies,” December 1998.) www.cbf.be/pe/pec/en_ec01.htm, Fondation des Administrateurs (“FDA”), The Director’s Charter (La Charte de l’Administrateur) (January 2000), www.ecgn.org.

A.2. Denmark

Danish Shareholders Association, Guidelines on Good Management of a Listed Company (Corporate Governance) (February 2000), www.shareholders.dk. The Nørby Commission, Recommendations for Good Corporate Governance in Denmark (December 6, 2001), www.corporategovernance.dk.

A.3. France

Conseil National du Patronat Français (“CNPF”) and Association Française des Entreprises Privées (“AFEP”), The Boards of Directors of Listed Companies in France

(Viénot I) (July 1995), www.ecgn.org, Association Française de la Gestion Financière—Association des Sociétés et Fonds Français d'Investissement (“AFG-ASFFI”), Recommendations on Corporate Governance (Hellebuyck Commission Recommendations) (June 1998, revised September 2001). www.afgasffi.com, association Française des Entreprises Privées (“AFEP”) and Mouvement des Entreprises de France (“MEDEF”), Report of the Committee on Corporate Governance (Viénot II) (July 1999), www.ecgn.org.

A.4. Germany

Berliner Initiativkreis (Berlin Initiative Group), German Code of Corporate Governance (June 2000), www.gccg.de, Grundsatzkommission Corporate Governance (“GCP”—German Panel on Corporate Governance), Corporate Governance Rules for German Quoted Companies (revised July 2000; first issued January 2000), www.corgov.de, Regierungskommission Deutscher Corporate Governance Kodex/Government Commission German Corporate Governance Code, Deutscher Corporate Governance Kodex/German Corporate Governance Code (draft, December 17, 2001), (www.corporate-governancecode.de) (German and English).

A.5. Italy

Comitato per la Corporate Governance delle Società Quotate (Committee for the Corporate Governance of Listed Companies), Report and Code of Conduct (Preda Report) (October 1999), www.borsaitalia.it.

A.6. The Netherlands

Secretariat Committee on Corporate Governance, Corporate Governance in The Netherlands—Forty Recommendations (Peters Report) (June 1997), www.ecgn.org, Vereniging van Effectenbezitters (“VEB”), Ten Recommendations on Corporate Governance in The Netherlands (1997), www.vebbottomline.com, Stichting Corporate Governance Onderzoek voor Pensioenfondsen (“SCGOP”) (Foundation for Corporate Governance Research for Pension Funds), Corporate Governance Handbook of the SCGOP (August 2001) (www.scgop.nl/downloads/Handbook_SCGOP.pdf).

A.7. Portugal

Comissão do Mercado de Valores Mobiliários (Securities Market Commission), Recommendations on Corporate Governance (November 1999), www.cmvm.pt.

A.8. Spain

Comisión Especial para el Estudio de un Código Etico de los Consejos de Administración de las Sociedades, El gobierno de las sociedades cotizadas (Olivencia Report) (February 1998), (www.ecgn.org). English translation: Instituto Universitario

Euroforum Escorial, The Governance of Spanish Companies (February 1998), instuniv@euroforum.es.

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Book Review Section

The book review section is interested in works published in any language, as long as they are comparative or international in character. The author or publisher of such works should furnish the book review editor with two (2) copies of the work, including information about its price and the address where readers may write for copies. Reviews will be assigned by the book review editor. No unsolicited reviews will be accepted. Suggestions of works that might be reviewed are welcomed.

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Book reviews

Norman B. Macintosh, Trevor Hopper (Eds.), *Accounting, The Social and the Political: Classics, Contemporary and Beyond*, Elsevier, Oxford, UK, 2005, xiv+402 pages, USD 99.95, EUR 91.95, ISBN: 0-08-044725-2

This book is a collection of 35 previously published articles (in abridged form) selected by a dozen participants at the *International Forum on the Future of Management Accounting, Control and Information Systems Research*, held at Queen's University, Canada, in May 2002. The participants were asked to select one or two personal favorites among their own (co)authored articles. In addition, the participants also suggested articles by other authors that they believe made significant contributions to accounting thought. Finally, anonymous reviewers of a preliminary draft of the book also suggested articles that were considered in making the final selection of 35 articles.

Based on the Acknowledgement section of the book, the 12 participants at the conference were: R. Baker, S. Carmon (probably a typo; I assume this is S. Carmona), D. Cooper, J. Dillard, M. Ezzamel, S. Jönsson, E. McGoun, P. Pihlanto, V. Radcliffe, A. Riccaboni, A. Richardson, and T. Shaerer. Including the two editors of this book (N. Macintosh and T. Hopper), 21 of the 35 selected articles, or exactly 60%, are (co)authored by these 14 people. Thus, although the editors admit that the selection of articles is highly idiosyncratic, the book includes reasonable coverage of articles not (co)authored by those who selected them (40% of the articles). In total, the 35 articles represent 48 contributors.

The selected articles deal with the role and impact of accounting on organizations and society, broadly speaking. All but one article (i.e., Lukka and Mouritsen's 2002 *European Accounting Review* article; Chapter 28, p. 305) are presented in the book in abridged form. The editors state that the articles were culled to highlight their main message while maintaining the integrity of the original content. I compared many of the trimmed articles in this book with the unabridged originals and concluded that the stated objective of the culling was mostly accomplished effectively. As a matter of fact, the culling was quite "unusual" or definitely "unpredictable" in that sometimes the culled article started with the content on, say, page 5 of the original article. In other words, the trimming was not done along predictable lines of taking the introduction, some major sections of the body, and then the conclusion of the original article. The book does not reveal who did the culling (the editors, the authors, or both), but I submit that it was done competently.

Many articles, however, are quite substantially trimmed. For example, Chapter 32, p. 353 (Oakes, Townley, and Cooper's 1998 *Administrative Science Quarterly* article) would have been easier to understand had the Theory section not been so substantially

trimmed. Similarly, Chapter 32, but also other chapters that are based on qualitative research, presents too little information about the research setting for the reader to be able to fully appreciate the remaining parts of the original article. And, the culling also has some more mundane, practical implications that affect the readability of some chapters. For example, Chapter 22 (Jönsson and Macintosh's 1997 (not 1977 as printed on p. 227) *Accounting Organizations and Society* article) does not spell out the CATS, RATS, and EARS acronyms because that section of Jönsson and Macintosh's original article was culled. Because of this, I expect that the curious reader will want to check out the original articles to obtain a more thorough and complete understanding of the abridged articles.

This raises the question whether it is worthwhile to bundle a collection of abridged published articles in a book, and if so, which audience is likely to value it. With this book, the editors target upper-division undergraduate and graduate students in professional accounting programs and doctoral students. The editors also believe that the book will be of interest to thoughtful, sophisticated professional accountants. In my opinion, the audience most suited for this book consists of doctoral students who consider pursuing research in this area. For them, the book provides a broad sampling of influential articles presented in an accessible format. If the book turns out to whet their appetite, they can then dig deeper by studying the original, unabridged articles in depth, as well as other articles in this area and related literatures. However, for a seminar-type doctoral course on, say, critical perspectives on accounting, I expect that an instructor is more likely to compose a reader of original articles of his/her choice rather than using this book with a collection of pre-selected abridged articles. For undergraduates and master's students in professional accounting programs, the book probably is too specialized to be required reading, other than perhaps for elective courses with this topical focus. Finally, I doubt that this book is presented in a sufficiently accessible format for it to be of great interest to busy practitioners. In summary, I believe that this book offers the best value for early-stage doctoral students who are exploring avenues for research.

If I am correct in my assessment of the most likely target audience for this book, then I believe that the work would have been even more valuable (beyond offering a broad sampling of influential articles in accessible format) had it attempted to provide more extensive introductions to each of the book's three sections (Classics, Contemporary, and Beyond). The current introductions to each section are quite brief (fewer than 2 pages each) and essentially "list" the chapters for the section with little further discussion, synthesis, integration, or perspective. After all, the articles are what they are, but it would have been especially valuable for the readers, particularly the novices among them, to see more perspective offered on the selected articles by the editors, both of whom are eminent scholars in this area.

The articles (chapters) in this book are organized in three sections. First, the *Classics* are seminal articles that introduced highly original ideas when first published that have become a source for future research and theorizing. The *Contemporaries* are articles of more recent vintage that have built on the foundations of the Classics and have extended that body of knowledge. The *Beyond* section contains articles that are exemplary of promising directions for further and future research on the roles and impacts of accounting on organizations and society. The editors effectively slotted the 35 articles along these lines. Although these lines are somewhat arbitrary, any other categorization I tried to think

of (e.g., thought pieces vs. empirics-based investigations) was equally, if not more, arbitrary (e.g., because many of the empirics-based investigations often introduce theories that are not necessarily covered by the thought pieces). There is no magic to the book's sections but, again, the implemented structure is as good, if not better, as any other way of trying to organize this eclectic body of work represented by the 35 articles. And although I would have liked to see a somewhat more extensive synthesis in each section's introduction (see above), the editors definitely presented a convincing logic for their chosen *order* of the articles in each section.

The editors could also have provided more perspective in the book's Postscript, which in its current form only offers thoughtful directions for, or conjectures about, future research (which the editors admit, they only did at the urging of the reviewers of an earlier draft of the book). In addition to discussing the prospects, I would have liked to see more of an attempt by the editors to offer their perspectives on what has been accomplished. I do realize, however, that given the eclectic body of work represented in the current book, such an editorial task would be quite challenging. (But it would also be quite useful for the targeted novice researchers trying to get their hands around this area of research.)

The conjectures in the Postscript essentially boil down to two points. First, the editors conclude that research in social and political accounting thought has gained in importance, and will continue to do so, finding a home in world-class journals. Second, this research will continue to be eclectic, heterogeneous, and innovative (using linguistics-based investigations, for example) in addressing important issues related to the roles and impacts of accounting as a cultural discourse; the roles and impacts of accounting in the face of increasing globalization; and the ethical side of accounting. In other words, the editors are optimistic that heterogeneity in accounting research will prevail.

I certainly hope that the editors are correct in their speculation, although I must admit that I am "cautiously" optimistic only. Considering the trend in the types of publications in the so-called "top" accounting journals (Bonner, Hesford, Van der Stede, & Young, in press), I see less, rather than more, heterogeneity in terms of the topics studied, the source disciplines relied on, and the methods employed. My observation is that, clearly, economics-based archival capital markets research appears to dominate these journals' offerings, with the exception of *Accounting Organizations and Society* (AOS). It is, therefore, no accident that 20 of the 35 articles (nearly 60%) in this book were previously published in AOS. Another three articles are from *Critical Perspectives on Accounting*, and there is only one article in this book from the other so-called "top" journals (Chua's 1986 *Accounting Review* article in Chapter 6, p. 55). My cautious optimism is also tainted by my observation that many schools, particularly European schools, recently have been drawing up "lists" of publication outlets that their deans use for faculty evaluation and promotion purposes. In a globally competitive quest for school rankings, these lists invariably include the "top 3" North-American accounting journals (*The Accounting Review*, *Journal of Accounting Research*, and *Journal of Accounting and Economics*), but none except one of the selected articles in this book came from these journals. However, given these observations, I do hope, like the editors, that there will be sufficient incentives for faculty to continue to study the diverse roles of accounting in organizations and society using eclectic and heterogeneous theories and methods. After all, as the editors state

(p. 402), "thinking about accounting (...) as a neutral and objective window on reality (...) [is] fatuously naïve."

Finally, the editors often use the term *management* accounting, rather than just *accounting*. Although most of the scholars involved in selecting the articles, and those who have authored the articles, might view themselves as *management* accounting researchers, the book deals with *accounting thought* more broadly. Many articles indeed have a management accounting focus or flavor, but many chapters deal with important issues that extend beyond the management accounting specialty area. Therefore, the (probably unintentional) positioning of the book as *management* accounting is not necessary and too limiting given the significance of social and political accounting thought.

I enjoyed reading this book. I already had read some of the unabridged published articles, but many I had not. As a scholar whose research is not square in this area, I found the book to be quite illuminating.

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Christopher S. Chapman (Ed.), Controlling strategy: Management, accounting and performance measurement, Oxford University Press, Oxford, 2005, ISBN: 0-19-928323-0, 191 pages, US\$124.50

This is a collection of seven previously unpublished essays organized by Christopher Chapman (Said Business School), which aims to develop our understanding of how management-control systems (MCS) may actively build and sustain a valuable strategy. The book presents a mix of essays relevant for both researchers and practitioners interested in surveying the research produced in the area of MCS and the implementation of strategy. Discussions and conclusions in the first three essays derive from an ample literature review. The other four essays report the result of studies based on various research approaches (case studies, field study, and clinical research) and consequently may attract more easily the attention of managers.

Discussions in each chapter improve our understanding of the relationship between MCS and strategy. The summary and directions for future research at the end of most chapters clearly map areas that remain unclear and, consequently, may deserve more attention and research in the future. The four chapters that use qualitative research methods

clearly explain the research method, which may interest researchers and academics. This is clearly a book recommended for scholars and researchers who aim to understand the relationship between MCS and strategy and to identify potential research projects in this area of study.

The remainder of this review comments briefly on each chapter. The first chapter defines the aim of the book, explains the context in which it is written, and summarizes each chapter. I will develop these ideas a little further and present my own view of each of the seven following chapters.

The second chapter, by Robert H. Chenhall (Monash University and James Cook University), discusses the role of MCS in formulating and implementing strategy, distinguishing between the content approach and the process approach, and summarizes how organizations could benefit from using both approaches to deal with strategic change.

The third chapter, by Tony Davila (Stanford University and IESE Business School), challenges the typical but unproven assumption that MCS are unsuited for companies in turbulent environments that tend to damage innovation. The chapter analyses the evolution of the MCS over the last decade and argues that while traditional MCS were imposing standardization at all levels of organization and could eventually reject innovation at both the operational and strategic levels, modern systems exist to support organizations in their effort to respond and adapt to a changing environment. The tension between the efficiency-focused control strategy and the innovation-focused control strategy is also discussed. Finally, grounded in the literature, the author argues that MCS are useful not only for companies facing highly controlled and stable environments but also for the contemporary unstable business environment where it can enable innovative strategic responses.

In the fourth chapter, Kim Langfield-Smith (Monash University) surveys the literature and discusses several areas of research related to MCS: (1) The fit between strategy, performance, and reward systems; (2) The relationship between capital expenditure (CAPEX) decisions and business strategy. In this section the author emphasizes the limited research despite the long-term implications of these decisions and the contrast between the “traditional” CAPEX decision on individual projects based on their NPV and the interactive use of control systems based on multiple-projects analysis and their strategic impact. This subject is thoroughly discussed by Miller and O’Leary in the last chapter; (3) The use of interactive controls in strategic change, which reinforces the argument of Davila in the previous chapter that MCS may have a positive impact on innovation and long-term performance; (4) The use of MCS in conjunction with operational strategies such as TQM, JIT, flexible manufacturing, business process re-engineering, and continuous improvement. This subject is also analyzed by Hansen and Mouritsen in the seventh chapter; (5) MCS and strategy in interim relationships are recent topics that spark the interest of researchers as MCS may play a role in deciding and managing interdependencies between organizations, such as outsourcing, joint-ventures, and strategic alliances. The author shows that the network company is clearly a new avenue of research; (6) and finally, the strategic style of corporate headquarters and the MCS of business units. Much more could be said in this section if the author extended the topic to multinationals and globalization, but the conclusions about the rise of behavior and socialization controls across subsidiaries is

coincident to the recommendations of Bartlett and Ghoshal in their book, *Managing across Borders: The Transnational Solution*, published in 1989 by Harvard Business School Publishing.

The fifth chapter by, Christopher D. Ittner and David F. Larcker (University of Pennsylvania), uses four case studies as evidence of the importance of using strategic data analysis (1) to check the coherence of the business model used by a firm; (2) to set non-financial targets that are associated with the creation of value; (3) to understand the cause-effect relationship between drivers that enhance value creation; and (4) to avoid subjectively weighing measures based on their assumed strategic importance.

The anecdotal approach in this chapter is very effective for bringing out the importance of data analysis for management decision and control. In spite of the potential benefits of strategic data analysis, several surveys mentioned in the chapter indicate that most companies with strategic measurement-performance systems do not perform these analyses. As a consequence, the chapter follows with a discussion of the technical and organizational barriers to strategic data analysis.

In contrast to previous chapters that surveyed the literature, the anecdotal analysis used in the case studies and the discussion of the barriers to strategic data analysis are based on extensive field research conducted by the authors in more than 60 companies and supplemented with survey studies in a broad spectrum of public- and private-sector organizations.

Thomas Ahrens (University of Warwick) and Christopher S. Chapman (University of Oxford), in chapter six, draw on practice theory to understand the strategic potential of MCS. Their analysis is grounded in an in-depth longitudinal field study on a U.K. restaurant chain where customer satisfaction was a key non-financial measure of performance. They focus the analysis on routines and practices surrounding strategic issues at all levels of the organization to demonstrate how strategy and day-to-day operations interact. The analysis and conclusions are relevant for managers in their use of management tools such as ABC, Balanced Scorecard, or Economic Value Added.

Chapter seven, by Allan Hansen and Jan Mouritsen (Copenhagen Business School), starts arguing that Kaplan and Norton had a "pre-made" conceptualization of strategy when developing the balanced scorecard (BSC), based on a "Porterian" framework. The environment and customers must be understood first and then it is possible to develop internal processes along with learning and growth activities. In contrast, Hansen and Mouritsen argue that the strategy in relation to the BSC may emerge from inside as a result of a particular organizational problem. In their four case studies, the environment and customers were not the point of departure for developing the BSC but a very specific internal problem: (1) In the first case, the cross-functional integration was poor and the value attached to the BSC was the capability for developing cross-functional communication; (2) The second case is a highly creative company lacking planning and the BSC was used for developing a planning culture; (3) In the third case the corporation was experiencing very high growth but the development of new subsidiaries internationally was showing a problem of variation in the execution of key processes in various locations. The BSC became a tool for standardizing and benchmarking the subsidiaries; (4) the fourth case is a company requiring improvement of efficiency in two major processes.

The BSC was launched simultaneously with a business process re-engineering project for monitoring it.

The authors clearly show that organizational problems are fundamental issues located in the history of each firm and that strategy became emergent rather than pre-definable. It is not evident, however, that the companies in these case studies implemented the BSC with the four perspectives defined by Kaplan and Norton. Eventually, a modification of the model—a Performance Scorecard or a Dashboard—that does not balance all the four perspectives is used. Nevertheless, this does not invalidate the conclusion of this chapter that strategy may come from the inside-out instead of from the outside-in as proposed by Porter.

In the final chapter, Peter Miller (London School of Economics and Political Science) and Ted O'Leary (Manchester Business School and University of Michigan) examine the coordination mechanism of capital budgeting, an issue that has been neglected in the investment-appraisal literature in accounting. They use the clinical research method (based on Intel) to analyze the coordination and assess the practices of capital investments to generate a particular technology, during the period from May 1996 to June 2000. The authors provide evidence of the usefulness of the technology road map as a mechanism for inter-organizational coordination for the industry in general and for Intel in particular.

My final comment is to say that I find the book an indispensable guide for scholars and advanced students of accounting, strategy and management.

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Malcom Smith, Performance Measurement and Management. A Strategic Approach to Management Accounting, Sage Publications, London, 302 pages, £24.99, ISBN 1-4129-0763-2; ISBN 1-4129-0764-0 (pbk)

This book builds on the inadequacies and limits of traditional management-accounting systems, and on the failure of financial accounting in supporting timely and effective decision-making, to emphasize a major need for awareness of new developments in performance measures. Those developments do not concern new techniques for data analysis; rather they focus on the availability of traditional data from on-line sources, new data from traditional sources, new attitudes towards data interpretation, and the implementation of change. The new developments are grouped into five key themes: (1) strategic goals, human resources; (2) customer focus; (3) employee creativity; (4) processes; and (5) information systems. After describing the main emerging issues in management accounting research (chapter 2), the need for a strategic approach is emphasized and alternative frameworks—such as strategic-management accounting, the SWOT analysis, and the resource-based view of the firm—are examined (chapter 3). Creative thinking and the development of a culture of innovation are described as crucial

aspects of non-traditional approaches to problem solving (chapter 4). The knowledge of the processes is another essential feature of decision support. In this context, new methods of cost measurement and management (such as ABC, ABM, target costing, etc.) offer opportunities for improving process analysis and process reengineering (chapter 6). A key theme of the book concerns human resource issues, involving both customers and employees (chapters 5 and 7). Product and customer profitability are examined from the perspective of alternative measurement systems, such as total quality management, target costing, and customer profitability. Employees are described as the "internal customers" of the organization and their empowerment is viewed as the development of human relation models (of which TQM is a typical example). Appropriate measures need to be adopted to ensure that employees do not perform in a dysfunctional manner. Finally, to improve human-resource management and process analysis and, more generally, to accomplish the changing needs for decision support, new information systems are required (chapter 8). The book underlines the need for a fully integrated information system, embracing both financial and non-financial indicators. In this context, the balanced scorecard is described as being able to provide a partial solution. In cases of high uncertainty, the accuracy of forecasts becomes crucial. In this context, risk-management techniques and predictive models are suggested (chapter 9).

The book provides a wide description of new developments in performance-measurement techniques, following the changing information needs of decision makers within an organization. While traditional management-accounting techniques are not denied, the need for a revised focus is emphasized, moving towards a strategic approach to management accounting. This change requires going beyond financial and short-term information to include a wide set of performance measures.

This book deals with a relevant topic. Over the last 20 years, business corporations have undergone massive transformations, which have forced them to redefine their strategies, structures, and processes. In the resulting highly uncertain market environment, business processes have been re-engineered according to various operational and business philosophies. Philosophies such as Total Quality Management and Business Process Re-engineering have been used to meet the resulting financial pressures by infusing organizational culture with a set of customer-oriented "values". In this contemporary business environment, organizational resources have to be organized and monitored in order to achieve the goals, which underpin the corporate vision of the business. As such, organizational leaders have to translate their broad mission and strategies into specific objectives and measures, and to communicate them across the organization. In doing so, they are increasingly relying on comprehensive, organization-wide, performance-measurement systems. In this context, the conventional financially based performance measures need to be substantially modified and integrated with broader non-financial measures (by means of tools such as the balanced scorecard). The traditional profit-related measures are increasingly being coupled with performance indicators, which measure, for instance, customer satisfaction, market share, numbers of rejects, extent of innovation, employees empowerment, etc., and which extend the roles, tasks, and content of the existing systems of accountability.

The book focuses on the previous debate by emphasizing the need to questioning the appropriateness of existing systems and measures while exploring new opportunities. The

potentialities and threats of new performance measures are analyzed and explained. Evidence from case analysis is used to clarify and support the various issues discussed. While providing a broad picture of new developments in performance-measurement systems, not all techniques and approaches are described in great depth in this book. For this reason, it cannot be seen as an introductory text, rather it is suitable for more advanced readings. It is also suitable for business managers and professionals, as it gives a comprehensive idea of the dynamic of performance measurement and management and the latest advanced techniques, underlying the relevance of management initiatives for doing things better.

While this book does not provide optimal solutions, it emphasizes the need for reviewing and altering the existing systems and measures. Much importance is given to the innovation processes. While new technologies, as well as the changing strategies and structures of the firms, are affecting management accounting systems, performance measurement and management should be designed and implemented to support a culture of innovation and creativity to adequately manage the process of change. The relationship between performance measures and product/process innovation is one of the key issues in the book. Performance measurement should be innovative while also promoting innovation that takes into account the various drivers and implications of the innovation process.

Another emerging issue concerns the need to implement an integrated performance-measurement system that embraces financial and non-financial measures, and leading and lagging indicators. That system should be able to support a strategic approach to management accounting, involving strategic decision-making, human-resource management, process analysis, and innovation. While integrating various aspects of the business, such a broad performance-measurement system should not ignore the need for accurate forecasts and risk evaluation, especially during periods of high uncertainty. The developments in performance-measurement practices provide new opportunities for implementing an integrated system, which takes into account alternative scenarios and the risks associated with variations in outcome.

While emphasizing the need for a fully integrated information system, the book does not provide specific guidelines on how to define and implement that system. The aim of the book is to improve the awareness of the new developments of performance measurement, to question the existing information system, and to consider the relevance of management initiatives for doing things better.

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A woman dances with her son

**because of brain surgery that
reduced her epileptic seizures**

**performed by a neurosurgeon who was
able to pinpoint the foci of the seizure**

**due to breakthroughs in the
mapping of the human brain**

**advanced by physicians, mathematicians
and computer engineers around the world**

**inspired by new discoveries
in imaging technologies**

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Journal Articles

Barth, M. E., Clinch, G. J., and Shibano, T. (1999). International accounting harmonization and global equity markets. *Journal of Accounting and Economics*, 26, 201–235.

Books

Neter, J., Wasserman, W., and Whitmore, G. A. (1993). *Applied Statistics* (4th ed.). Needham Heights, MA: Allyn & Bacon.

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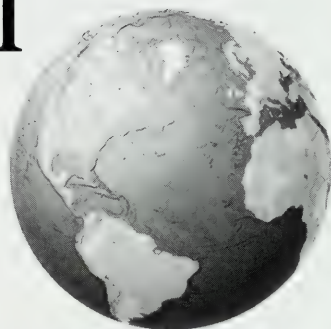


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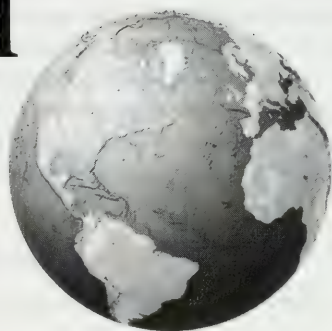
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The association between management earnings forecasts, earnings management, and stock market valuation: Evidence from French IPOs

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Abstract

This study investigates managers' motivations to engage in earnings management through purposeful interventions in the setting of discretionary accruals, in the context of initial public offerings (IPOs) in France. Firms issuing forecasts in their prospectuses are expected to differ from nonforecasters in the level of earnings management during the year following the public offering. Within the context of contracting theory, four research questions are addressed. First, are IPO firms issuing forecasts more inclined to manage earnings 1 year after an IPO compared to nonforecasting firms? Second, is a forecasting firm's level of earnings management conditioned by earnings-forecast deviation? Third, is earnings management by IPO forecasting firms affected by contractual and governance environments? Fourth, how do investors see through earnings management following IPO earnings forecasts, i.e., how do stock market participants value earnings components (i.e., nondiscretionary and discretionary accruals)? Our findings document that in the year following an IPO, the magnitude of earnings management is much higher for forecasters than for nonforecasters. Results also show that a firm's accrual behavior is affected by earnings-forecast deviation, but the relationship is moderated by contractual and governance constraints. Finally, it would appear that French investors do not adequately readjust the relationship between reported earnings and a firm's market value for the year in which earnings are subject to manipulations.

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Keywords: Corporate governance; Accruals; Earnings management; Earnings valuation; Initial public offering; Management forecasts

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1. Introduction

Our purpose in this article is to assess, in the context of French IPOs, earnings quality and its determinants, and how earnings quality affects stock market valuation. More specifically, four research questions are addressed in this study. First, are IPO firms with forecasts more inclined to manage earnings 1 year after the IPO compared with IPO firms not issuing forecasts? Second, is forecasting firm's level of earnings management conditioned by earnings-forecast deviation? Third, is earnings management by IPO firms issuing forecasts affected by contractual and governance environments? Fourth, how do investors see through potential earnings management following IPOs' earnings forecasts, i.e., how do stock market participants value earnings components (i.e., nondiscretionary accruals and discretionary accruals)?

Capital market information dynamics are ultimately driven by a country's governance regime as it affects both the relative benefits and costs of corporate reporting, as well as the way capital market participants function (Bushman & Smith, 2003). In other words, the quality of corporate reporting for such things as earnings figures and the effectiveness of its use by stock market participants is an outcome of a country's governance regime (Roe, 2003). Value relevance of earnings and book value of equity are generally higher in countries with a dominant market-oriented financing system and an Anglo-Saxon accounting orientation (Ali & Hwang, 2000). However, it does appear that providing value-relevant information is not the primary driver of accounting and disclosure in code-law countries such as France. We think the French context offers a unique opportunity to investigate corporate financial reporting, and in particular, earnings management.

Voluntary corporate disclosure is now perceived to be a strategic tool encompassing all aspects of a firm's performance. Such evolution in corporate practices appears to be well founded with empirical evidence suggesting that proactive disclosure policies provide many benefits to a firm such as a lower cost of capital (e.g., Botosan, 1997; Botosan & Harris, 2000; Lev, 1992; Skinner, 1994). Prior studies suggest these benefits also apply to management earnings forecasts. Clarkson, Dontoh, Richardson, and Sefcik (1992) and Jog and McConomy (2003) examine why some firms making an IPO in Canada include earnings forecasts in their offering prospectuses and others do not. Their results suggest that voluntary forecasters tend to reveal good news and that their forecast signals convey information to market participants. Hence, the voluntary disclosure, including management forecasts, has a noticeable impact on the degree of information asymmetry.

This study investigates, in the context of French IPOs, managers' motivations to engage in earnings management through purposeful interventions in the setting of discretionary accruals. Firms issuing forecasts in their prospectuses are expected to differ from nonforecasters in their levels of earnings management during the year following the public offering. Previous studies report evidence that managers who release earnings forecasts before their firm goes public have incentives to engage in earnings management to reach forecast targets subsequent to IPOs (Gramlich & Sorensen, 2004; Kasznik, 1999; Magnan & Cormier, 1997).

Within the context of contracting theory, we characterize voluntary forecast disclosure as a reporting environment where managers may be pressured to engage in earnings management in the year following the IPO. For the period covered by the forecast, anecdotal evidence suggests that managers may attempt to steer a firm's earnings toward the figure contained in the prospectus since they believe their credibility, and potentially the firm's

value, could be negatively affected by an unfavorable comparison. However, any attempt to manage reported earnings would be constrained or magnified by a firm's contractual and governance environments: the independence of the board, the ownership structure, or voluntary compliance to international accounting standards.

The last question we seek to answer is whether French investors put a different valuation weight on earnings reported by firms potentially subject to manipulation through the use of discretionary accruals, i.e., whether or not stock market participants value earnings components differently (i.e., nondiscretionary accruals and discretionary accruals).

Our results document that for the year following an IPO, the magnitude of earnings management is much higher for forecasting firms than for nonforecasting firms. Results also show earnings-forecast deviation influences a firm's accruals behavior, which is moderated by a firm's contractual and governance constraints. Finally, in the year earnings are more likely to be subject to manipulations, i.e., the year following an IPO, our results suggest French investors do not readjust the relationship between reported earnings and firm valuation, suggesting they do not adequately see through earnings management.

The remainder of the paper is organized as follows. Section 2 contains a description of the institutional environment in which French firms evolve. The study's theoretical background and research hypotheses are developed in Section 3. The method is presented in Section 4, while results are discussed in Section 5. Finally, Section 6 concludes and provides implications of this study.

2. Institutional environment

In September 2000, the Amsterdam, Brussels, and Paris exchanges merged to form Euronext, the first pan-European stock exchange. In 2002, two new stock exchanges, the LIFE¹ and the Portuguese Stock Exchange joined Euronext.

In France, the *Autorité des Marchés Financiers* (or AMF), formerly the *Commission des Opérations de Bourse* (COB), was created by the Financial Security Act of August 2003. The AMF came out of the merger of the *Conseil des Marchés Financiers* (CMF), the COB and the *Conseil de Discipline de la Gestion Financière* (CDGF). Its task is to monitor that companies provide complete, relevant information on a timely basis and in an equitable manner to all market participants (investors, financial analysts, and the general public). When practices contravene with the General Market Regulations or professional obligations, the AMF (and the COB pertaining to the current study) may conduct inspections and investigations and its Sanction Commission may impose sanctions or penalties.²

Until February 2005, Euronext Paris was made up of three regulated markets with different listing criteria such as a firm's size and the level of free float (see Appendix A). The *Premier Marché* (formally the official list) was dedicated to major companies in terms of market

¹ The London International Financial Futures and Options Exchange.

² Firms may be subject to sanctions related to the conduct of their business activity (warning, orders to conform, temporary or permanent prohibition on providing all or part of the services previously provided) as well as fines up to €1.5 million or 10 times the unlawful profits earned. For instance, between 2000 and 2004, many companies such as Pallas Stern, Waeles, Belvédère, Albert, Cofidur, Cocoon and Aurea were prosecuted by the COB or the AMF for misinformation. In 2004, 40 companies were ordered by the President of the Court to release missing financial data.

capitalization. The Second Marché included medium-size companies, and the Nouveau Marché was the segment with young and fast-growing companies. In France, there was also a Marché Libre (OTC) for companies that were too young or too small to be listed on a more regulated market.

In order to be listed in France, companies must fulfill requirements of Euronext Paris and the French securities regulator.³ In short, a legal document, called the IPO prospectus, must be produced which includes information such as firm investment objectives, policies, and restrictions, fees and expenses, and how shares can be bought and sold. In their offering documents, companies must disclose information about their future prospects, but the extent and detail of the disclosure is at the company's discretion. In this context, some firms choose to disclose earnings or sales forecasts while others decide not to disclose.⁴ If they do so, a limited review must be conducted by the external auditor (COB Règlement No. 98-07; International Organization of Securities Commissions, 1998).⁵ The difference in legal liability systems between France and Anglo-Saxon countries constitutes an institutional aspect that could influence the decision to issue earnings forecasts and earnings management practices. Whereas Anglo-Saxon countries rely on a common-law system, France relies on code law. In a code-law environment, obligations towards third parties are strictly defined and delimited within the law. For example, this criterion does not strictly apply in the United States where an aggrieved third-party beneficiary need prove only that the auditor was guilty of negligence and that losses were sustained because of reliance on the audited information.

A higher demand for corporate transparency by outside parties is especially expected when the enforcement of contracts is high, and contracting parties do not have access to private information (Bushman, Piotroski, & Smith, 2004). Hope (2003) constructs a comprehensive measure of enforcement based on five country-level factors (audit spending, insider-trading laws, judicial efficiency, rule of law, and shareholder protection). Among their sample countries, the United States presents the strongest enforcement, while France is among the countries exhibiting the lowest enforcement. In a similar vein, Leuz, Nanda, and Wysocki (2003) show that outsider economies with large stock markets, dispersed ownership, strong investor rights and strong legal enforcement mitigate insiders' incentives to manage earnings. The reporting context in France is less rule-oriented (prescriptive) than in the United States and less subject to lawsuits or litigations. In that regard, Bushman et al. (2004) document that while the frequency and comprehensiveness of interim financial reports is higher in France than in Germany or in Switzerland, it is still much lower than in Anglo-Saxon countries. Therefore, while the French

³ All the requirements are described in COB article number COB 98-01.

⁴ In the COB annual report of 1998, it is mentioned (page 46) that firms must disclose prospective information over 3 years, but it can consist of detailed financial statements, wide-ranging, or broad information ("données significatives générales"). Moreover, a document released by AMF in December 2001, entitled *Instruction de décembre 2001 prise en application du règlement No. 95-01* (page 5), mentions that *if* the prospectus includes a development project with quantitative data, the information must be audited. That would mean that the inclusion of such a statement is not mandatory.

⁵ The EU Prospectus Directive (the Prospectus Directive) effective by July 1, 2005 requires that financial statements be prepared in accordance with International Accounting Standards (IAS/IFRS) and International Standards on Auditing. The future prospects of the issuer for at least the current financial year must be given. If profit forecasts are provided, they should be accompanied by a statement prepared by independent accountants or auditors assessing that the forecast has been properly prepared on the basis stated and that the basis of accounting is consistent with the issuer's accounting policies.

financial markets are evolving toward more enforcement, we expect that this context may still lead to optimistic earnings forecasts and subsequently to lower quality financial reporting, i.e., to earnings management with the objective to reach these forecasts.

3. Earnings forecasts, earnings management and stock market valuation: Development of hypotheses

3.1. Earnings management: Forecasters/non-forecasters

In some countries, firms are allowed to voluntarily disclose earnings forecasts in their Initial Public Offering (IPO) prospectuses. These countries include, among others, the United Kingdom, Canada, France, and more recently the United States.⁶ In this study, we view the voluntary inclusion of earnings forecasts in the IPO prospectus as a contractual motivation for earnings management. Lees (1981) reports that managers' concerns over inaccurate forecasts may lead to negative stock market reactions as investors view these firms as unstable and risky.

Prior research documents evidence of earnings management to avoid an earnings decline and an earnings loss (Philips, Pincus & Rego, 2003). To avoid a negative earnings surprise, Matsumoto (2002) finds that two mechanisms play an important role, i.e., downward-guiding forecasts and positive, nondiscretionary accruals. Specifically, Matsumoto (2002) finds that two mechanisms play an important role in avoiding earnings surprise, i.e., guiding forecasts downward or managing earnings upward. In this study, we examine the role of voluntary inclusion of earnings forecasts in IPO prospectuses in the earnings management of issuers. Kasznik (1999), Magnan and Cormier (1997), and Gramlich and Sorensen (2004) find evidence that managers who release earnings forecasts in the IPO's year manage reported earnings to meet their forecasts. Hence, voluntary disclosure of earnings forecasts creates incentives for managers to manipulate earnings during the year following the public offering. Indeed, firms who voluntarily include earnings forecasts in their offering prospectuses are expected to differ from nonforecasters in their level of earnings management during the year following the public offering. The investigation of earnings management in the new issues market is based on the estimation of discretionary accruals (e.g., Dechow, 1994; Jones, 1991; Kothari, Leone, & Wasley, 2001). This gives rise to our first hypothesis:

Hypothesis 1. Forecasting firms are more likely to manage earnings one year after an IPO compared to nonforecasting firms.

3.2. Earnings-forecast deviation

In France, firms issuing new stock through an IPO can include voluntary sales and earnings forecasts in their prospectuses. While not audited in the traditional sense, these

⁶ In contrast, inclusion of an earnings forecast was almost nonexistent in U.S. markets before the American Congress provided additional safe harbors in the Private Securities Litigation Reform Act of 1995 for parties associated with good-faith projections (Baginski, Hassel, & Kimrugh, 2002).

forecasts are reviewed by the firm's auditors who then issue an opinion about the plausibility of the forecast assumptions. Hence, the decision by a firm to issue a forecast is by no means trivial since audit and related fees can climb quite rapidly. However, benefits can also accrue to a firm when it chooses to issue forecasts. Empirical evidence suggests that "forecasters have good news to reveal about their future earnings and that forecast signals are valuation relevant" (Clarkson et al., 1992, p. 601). By issuing a costly forecast signal, IPO firms are giving investors a benchmark (i.e., threshold) against which they could assess future earnings performance. As a result, both the firm and investors can be perceived as entering into an implicit contract.

Earnings provide important information for investment decisions. Thus, executives have strong incentives to manage earnings. Degeorge, Patel and Zeckhauser (1999) show how thresholds and implicit contracts induce specific types of earnings management. They observe that three thresholds induce earnings management: to report positive profits; to sustain recent performance; and to meet analysts' expectations. The positive-profit threshold proves predominant. Failure to perform in accordance with the terms of the implicit contract can have many implications. First, the market value of the firm could be negatively affected. Second, the firm's ability to raise funding in the future could be hindered. Third, management's credibility in future dealings with investment bankers, commercial lenders, stockholders, and employees would be impaired. Therefore, we expect that an earnings forecast will increase the extent of earnings management during the period covered by the forecast.

However, both forecasting firms and nonforecasting firms may have incentives to improve their financial picture before the IPO. Empirical results regarding the existence of accruals management before the issue are mixed. Two studies report positive accruals for the period around the IPO (Friedlan, 1994; Teoh & Rao, 1998). Another study does not find any conclusive evidence of earnings management around the IPO (Aharony, Lin, & Loeb, 1993). Furthermore, Teoh and Rao (1998) do not find any statistical evidence of earnings management during the period before and following the IPO. In addition, Teoh, Wong, and Rao (1999) find evidence consistent with a scenario where firms either time an IPO immediately after a year of unusually high cash flow or boost cash flows right before the IPO, and then utilize accounting accruals to sustain reported net income in the year of the IPO. Results of Teoh et al. (1999) show that IPO firms attempt to manage investors' perceptions with discretionary accruals.

Hence, forecasting firms and nonforecasting firms are not expected to differ in their accruals behavior before an IPO, since their interests should be similar.

Hypothesis 2. A forecasting firm's level of earnings management will be higher if its actual earnings are lower than expected.

3.3. Earnings-forecast deviation—contractual and governance environment

We posit that the possibility for managers to use accounting discretion to reduce earnings forecast error depends on contractual and governance constraints imposed by (1) the decision to comply with international accounting standards; (2) the degree of independence of the board; (3) a high-quality auditor; (4) the ownership structure; (5) the ownership retained by the entrepreneur; (6) firm's size; and (7) leverage.

3.3.1. IAS/IFRS compliance

Ball, Robin, and Wu (2003) argue that adopting high-quality accounting standards might be a necessary condition for high-quality information, but not necessarily a sufficient one. Leuz and Verrecchia (2000) document that adopting IAS/IFRS or U.S.-GAAP is a signal of more transparency by firms and constitutes reporting incentives created by market forces. They argue that firms electing either IAS/IFRS or U.S.-GAAP should earn economic benefits in the form of a lower information-asymmetry component of the cost of capital. Thus, consistent with the view that complying with international accounting standards is likely to improve earnings quality, we posit the following hypothesis:

Hypothesis 3. Earnings management to meet forecasts will be lower for firms complying with IAS/IFRS standards.

3.3.2. External board

Several papers present evidence suggesting that effective governance and firm performance increase with board of director independence (for example, see Brickley, Coles, & Terry, 1994; Byrd & Hickman, 1992; Weissbach, 1998). Others document a negative link between outside directors and the incidence of financial fraud (see Dechow, Sloan, & Sweeney, 1996). Moreover, the presence of an independent and competent board of directors should limit a manager's ability to manage earnings at his/her own discretion (Klein, 2002; Peasnell, Pope & Young, 2003). The independence of the board allows directors to object to a manager's decision when they feel that the resulting financial statements are not representative of the economic reality of the firm. Peasnell et al. (2003) report evidence of a significant negative association between income-increasing accruals and the proportion of outside board members. In the same vein, Klein (2002) documents a negative relation between audit-committee independence and discretionary accruals. She also finds a negative relationship between board independence and discretionary accruals. Reductions in board or audit-committee independence are accompanied by large increases in discretionary accruals. The most pronounced effects occur when either the board or the audit committee is comprised of a minority of outside directors. These results suggest that board independence is effective in monitoring the corporate financial-accounting process. This allows us to draw our fourth hypothesis:

Hypothesis 4. Earnings management to meet earnings forecasts will be lower for firms with a board of directors composed of a majority of external directors.

3.3.3. Auditor

There is theoretical as well as empirical support for the proposition that a Big4 audit is of higher quality than a non-Big4 audit (e.g., Krishnan & Schauer, 2000; Palmrose, 1988). Moreover, there is also evidence that a high-quality audit translates into lower accruals (Becker, Defond, Jambalvo & Subramanyam, 1998; Davidson & Neu, 1993). In essence, firms with Big4 auditors are found to report a greater discrepancy between earnings forecasts and actual earnings than firms without a Big4 auditor. This indicates that higher quality audits lead to less earnings management by firms to achieve forecasted earnings figures. In the context of the present study, we hypothesize that firms audited by one of the four large national

audit firms should exhibit a lower level of earnings management compared with firms that are not audited by one of these auditors.

Hypothesis 5. Earnings management to meet forecasts will be lower for firms audited by a Big 4 auditor.

3.3.4. Ownership structure

Empirical evidence indicates that manager-controlled firms are more likely to adopt income-increasing accounting practices than owner-controlled firms (Dempsey, Hunt, & Schroeder, 1993; Dhaliwal, Salamon, & Smith, 1982; Warfield, Wild, & Wild, 1995). The maximization of the present value of bonus-plan payments is a likely outcome of such behavior (Holthausen, Larcker & Sloan, 1995). In this context, managers may see earnings management as a way to maintain the value of their human capital in managerial labor markets (DeAngelo, 1988; Fama, 1980). It seems that the higher the percentage of stocks held by an entrepreneur, the less the incentive to increase earnings through accruals management. In that case, managers prefer to focus on wealth maximization through share price appreciation (Dechow & Sloan, 1991; Holthausen et al., 1995). However, the larger the extent of public ownership, the greater the scrutiny given to a firm's reported earnings as the number of analysts increases. Such consideration is likely to reduce managerial incentive to increase reported earnings. Accordingly, we posit the following hypothesis:

Hypothesis 6. Earnings management to meet forecasts will be reduced for firms with closely held ownership.

3.4. Control variables (other contractual constraints)

Regardless of whether a firm has decided to include a forecast or not, a manager's ability and incentive to manage earnings is influenced by the firm's contractual environment, namely its debt contracts, executive reward schemes, potential political costs (Watts & Zimmerman, 1990), ownership structure, ownership retention by initial controlling of stockholders (Dhaliwal et al., 1982), and the independence of its auditors (Davidson & Neu, 1993). In the current study, managers' compensation numbers are available for only 49 out of 67 forecasting firms. Accordingly, three contractual constraints are included in our earnings management explanatory model as control variables.⁷

3.4.1. Retained ownership

Chen, Firth, and Krishnan (2001) and Jog and McConomy (2003) argue that the larger the number of inside shareholders, the smaller the problem if the forecasts are inaccurate. Hence, the larger the percentage of ownership retained by the entrepreneur at the IPO date, the less the incentive to manage earnings. We utilize the percentage of retained ownership as a control variable and we expect a negative relationship with earnings management.

⁷ Regressions are also estimated adding the variable "managers' compensation in percentage of total salary." The coefficient is not significant for any regression model.

3.4.2. Size

In the same vein, large firms are more likely to be targeted by pressure groups and lobbies for wealth transfers, for example, through changes in tax laws. These factors would provide incentives for firms to reduce earnings as they become publicly traded. In a political cost context, Jones (1991) in the United States and Magnan, Nadeau, and Cormier (1999) in Canada find evidence that firms under import-relief investigations by the Industrial Trade Commission (ITC) seem to understate their earnings. Similarly, Cahan (1992) observes that firms under antitrust investigations reduce their earnings by managing their accounting accruals. Therefore, we use firm size as a control variable and we expect a negative relationship with accruals' management.

3.4.3. Leverage

On the other hand, managers in firms whose leverage is close to debt covenants may attempt to improve earnings by selecting income-increasing accounting methods (Bowen, Noreen & Lacey, 1981). The larger a firm's leverage, the more likely the firm's manager is to select accounting procedures that shift reported earnings from future periods to the current period (Watts & Zimmerman, 1990). Empirical evidence supports the use of a debt-assets ratio as a proxy for the closeness to debt covenant constraints (Duke & Hunt, 1990; Press & Weintrop, 1990). In France, Coulombe and Tondeur (2001) document the existence of covenants concerning asset disposals, dividend distribution, mergers and acquisitions, and new financing. However, in an IPO context, a high leverage ratio can be associated with smaller equity financing. The higher a firm's level of indebtedness, the less it relies on equity financing and the less managers need to attempt managing investor perceptions with discretionary accruals. Since the actual impact of leverage on earnings management is unclear, no directional predictions are made for these variables.

3.5. Earnings management and stock market valuation

The level of accounting discretion given to managers can affect earnings figures. Cormier, Magnan, and Zéghal (2001) show that depreciation and provision expenses are much larger in France compared to the United States. Prior research shows that in markets with high liquidity and sophisticated investors (e.g., the U.S. markets), accruals are more value relevant than cash flow from operations, in that the key purpose of financial statements is to provide useful information to help investors assess a firm's performance (Sloan, 1996). Moreover, normal accruals are more valued than discretionary accruals (Dechow, 1994; Subramanyam, 1996).

Balsam, Bartov, and Marquardt (2002) document a negative association between unexpected discretionary accruals and abnormal returns around the 10-Q filing date for U.S. firms. Furthermore, the price reaction of sophisticated investors precedes that of unsophisticated ones. This result suggests that investors reassess earnings figures for U.S. markets.

In the Swiss context, considering the economic importance of dividends and taking into account that dividends are based upon reported earnings, Cormier, Magnan, and Morard (2000) find that all three components of reported earnings are positively related to firm value and the coefficients from all three components of earnings are quite similar. This result is consistent with two alternative scenarios: managerial discretion improves the ability of earnings to reflect economic value, or discretionary accruals are opportunistic, but priced by an inefficient market (Subramanyam, 1996). Under the first scenario, managers improve value relevance of earnings by managing earnings and then communicating

private information about the future profitability of the firm. In the second scenario, discretionary accruals are seen as an opportunistic distortion of earnings. In that case, value relevance of discretionary accruals provides evidence that the stock market is functionally fixated on earnings. Consistent with this scenario, Teoh and Rao (1998) and Balsam et al. (2002) find a negative relationship between discretionary accruals and post-issue stock returns suggesting that investors naively fixate on pre-issue earnings without correcting for discretionary accruals.

Therefore, either discretionary accruals improve the ability of earnings to reflect economic value, or discretionary accruals are seen as an opportunistic distortion of earnings and are value irrelevant but priced by an inefficient market or unpriced in an efficient market. Since the actual impact of discretionary accruals on French stock market valuation is unclear, we refrain from making directional predictions, and thus no hypothesis will be formulated.

4. Method

4.1. Sample

The sample is composed of 118 IPO firms listed on Euronext Paris between 2000 and 2002. To be included in the sample, firms must meet the following criteria:

- 1) The issue is an initial public offering of common stock, under a primary distribution;

Table 1

Sample	Number of Firms
Initial public offerings on the Paris Exchange <i>during</i> 2000–2002 period (138 in 2000, 59 in 2001 and 29 in 2002)	226
Firms excluded because of the lack of accessible information (prospectus missing, incomplete)	(63)163
Delisted, mergers and acquisitions	45
Sample of IPOs	118
IPO firms without earnings forecasts	40
IPO firms with earnings forecasts	78
First market (18/23) (0 forecasting firm)	18
Second market (22/33) (17 forecasting firms)	22
New Market (54/62) (41 forecasting firms)	54
OTC market (24/108) (20 forecasting firms)	24
(118/226)	118
Basic industries	10
General industries	8
Cyclical consumer goods	7
Non-cyclical consumer goods	8
Cyclical services	24
Non-cyclical services	7
Financial services	5
Information technology	49
	118

- 2) Annual reports for the year covered by the forecast, prior year, and the year following the IPO are available on EURONEXT's web site, AMF database (SOPHIE), on the firm's web site, or on WORLDSCOPE's database;
- 3) The prospectus is available on EURONEXT's web site or the AMF database (SOPHIE).

The sampling procedure yielded a sample of 118 IPO firms, 78 forecasting firms, and 40 nonforecasting firms (Table 1). A firm is classified as forecasting if it issues a precise earnings forecast for the year following the IPO. Cyclical services (20%) and information technology (42%) accounts for 62% of sample firms. No other industries are predominant. Furthermore, none of the First market issuers issued forecasts in their prospectus.⁸ Missing data were a problem for many firms listed on the OTC Market, since we did not find relevant data for 84 out of 108 firms. For these firms, even when the prospectuses are available, there are often missing or incomplete data (e.g., cash flow from operations).

4.2. Empirical models

4.2.1. Earnings management

We measure total accruals as the difference between net earnings and cash flow from operations.⁹ Corporate executives can engage in earnings management essentially by altering or revising estimates employed in the computation of accruals. While a firm's earnings also depend on its level of cash flow from operations, it is less likely that executives will manipulate cash flow.¹⁰

It is not evident how clients can be forced to pay unpaid balances sooner, and postponing payments to employees and suppliers is bound to create numerous problems.

While a firm's total accruals are easily accessible from its financial statements, its discretionary and nondiscretionary accruals are not directly observable and must be inferred through an estimation model. Nondiscretionary accruals reflect a firm's economic environment or its underlying level of activity independent of strategic earnings management

⁸ We can refer to at least three factors that might influence the decision for First Market firms not to issue forecasts: foreign exchange listings; ownership; and systematic risk. Two-thirds are cross-listed. The decision to issue forecasts is taken in a larger perspective. The remaining sample firms are family controlled firms or concentrated ownership firms. Furthermore, systematic risk (beta) is higher compared with other markets (mean of 1.29 versus 1.02). Cox (1985) documents that forecast error is higher for firms with higher beta. Therefore, the likelihood of negative consequences for managers issuing forecasts would increase when systematic risk is high. These factors are somewhat related to the level of information asymmetry. Clarkson et al. (1992), and Jog and McConomy (2003) document that management forecasts reduce information asymmetry. Hence, it is likely that information asymmetry is lower for large cross-listed firms, thus reducing the incentive for issuing forecasts.

⁹ Collins and Hribar (2002) argue that the difference between net income and cash flow from operations is the correct measure of total accruals and that the use of a balance-sheet approach may lead to a systematic bias in discretionary-accruals estimation.

¹⁰ For example, while in general cash flow from operations should be less affected than net earnings by managerial intervention in the accounting process, this is not the case in the oil and gas industry for the accounting method choice between full cost and successful efforts (Cormier & Magnan, 2002).

by its executives. For a given firm (i), current period (t) nondiscretionary accruals can be modeled in the following manner:

$$\text{Accruals}_{it} = \alpha_1 \text{ Change in Sales}_{it} + \alpha_2 \text{ Cash Flow}_{it-1} + \alpha_3 \text{ PPE}_{it} + \alpha_4 \text{ Negative Earnings}(1/0)_i + \varepsilon_{it} \quad (1)$$

Eq. (1) implies that a firm's current period total accruals (Accruals) are more or less determined in a systematic manner by its current performance (Change in Sales), lagged cash flow from operations (Cash Flow) and the level of its property, plant and equipment (PPE). Prior empirical evidence is consistent with such propositions. First, variation in sales is a proxy for a firm's performance. Second, lagged cash flow from operations (i.e., cash from last period) is assumed to systematically determine current period nondiscretionary accruals since changes in cash flow and in accruals are correlated over time (Dechow, 1994). Third, the level of property, plant, and equipment serves to control for other nondiscretionary components such as the portion of depreciation expenses, unconditional on a firm's performance or activity level, or upon managerial discretion (Jones, 1991). Fourth, since there are many firms reporting negative earnings in their IPO year (around 30%), we add a dummy variable net loss (1/0) to control for it.

Prior studies (e.g., Jones, 1991) estimate nondiscretionary accruals using time-series observations for each sample firm. In the case of IPOs, the data are not available. We estimate nondiscretionary accruals in the IPO year for a sample of 118 observations (R -square: 18.2%; F -statistic: 6.852).¹¹

$$\begin{aligned} \text{Accruals}_{it} = & 0.028 + 0.065 \text{ Change in Sales}_{it} - 0.288 \text{ Cash Flow from operations}_{it-1} \\ & (0.156) \quad (0.052) \quad (0.017) \\ & - 0.163 \text{ PPE}_{it} - 0.090 \text{ Negative Earnings}_{it} \\ & (0.004) \quad (0.001) \end{aligned} \quad (2)$$

The coefficients from the above regression (variable scaled by total assets except the dummy variable for net loss)¹² are then used to compute fitted values (also called estimated total accruals values) for firms issuing forecasts in the following way:

$$\text{Estimated Accruals}_{it} = \alpha_0 + \alpha_1 \text{ Change in Sales}_{it} + \alpha_2 \text{ Lagged Cash Flow}_{it-1} + \alpha_3 \text{ PPE}_{it} + \alpha_4 \text{ Negative Earnings}_{it} \quad (3)$$

The resulting estimated accruals measure is then subtracted from the sample firms' actual total accruals for forecasting firms to obtain an estimate of discretionary accruals.

¹¹ Coefficients are not substantially affected when we control for industry membership. Among industry dummies, only one coefficient (cyclical services; $p < 0.004$) is statistically significant at 0.10. Results are as follows (R -square: 24.8%, F -statistic: 3.888):

$$\begin{aligned} \text{Accruals}_{it} = & 0.050 + 0.050 \text{ Change in Sales}_{it} - 0.278 \text{ Cash Flow from operations}_{it-1} \\ & (0.016) \quad (0.075) \quad (0.014) \\ & - 0.121 \text{ PPE}_{it} - 0.072 \text{ Negative Earnings}_{it} \\ & (0.017) \quad (0.001) \end{aligned}$$

¹² Estimating the regression scaling by lag total assets instead of current year total assets provides similar results.

However, any measure of discretionary accruals is a noisy estimation, and testing for earnings management using discretionary accruals can yield biased results if the measurement error is correlated with the partitioning variable (i.e., forecasting firms). To assess the reliability of our measure for discretionary accruals, we also estimate nondiscretionary accruals using the model expressed in equation 1 based on the 98 nonfinancial French firms listed on SBF120 for the year following the IPOs. Observations are split into three different industry groupings: Consumer goods and services ($n=40$); Industrials ($n=29$); and Technology and telecom ($n=29$). Then, for the estimation of discretionary accruals, we group our sample of IPO firms according to this industry classification: Consumer goods and services (cyclical and noncyclical consumer goods, cyclical and noncyclical services, financial services=51 firms); Industrials (basic and general industries=18 firms); and Technology and telecom (information technology=49 firms).

The following regression is then performed for our two estimations of discretionary accruals:

$$\begin{aligned}
 \text{Discretionary accruals}_{it} = & g_0 + g_1 \text{Earnings-forecast deviation}_{it} \\
 & + g_2 \text{Earnings-forecast deviation}_t * \text{Positive Earnings-forecast deviation}_{it} \\
 & + g_3 \text{Earnings-forecast deviation}_t * \text{IAS/IFRS}_{it} \\
 & + g_4 \text{Earnings-forecast deviation}_t * \text{External Board}_{it} \\
 & + g_5 \text{Earnings-forecast deviation}_t * \text{Auditor}_{it} \\
 & + g_6 \text{Earnings-forecast deviation}_t * \text{Concentrated Ownership}_{it} \\
 & + g_7 \text{IAS/IFRS}_{it} + g_8 \text{External Board}_{it} + g_9 \text{Auditor}_{it} \\
 & + g_{10} \text{Concentrated Ownership}_{it} + g_{11} \text{Positive Earnings-forecast deviation}_{it} \\
 & + g_{12} \text{Retained Ownership}_{it} + g_{13} \text{Size}_{it} + g_{14} \text{Leverage}_{it} \\
 & + g_{15} \text{Second Market}_{it} + g_{16} \text{OTC Market}_{it} + e_{it}
 \end{aligned} \tag{4}$$

5. Independent variables

5.1. Earnings-forecast deviation

Prior literature considers the previous year's annual earnings as the target (e.g., Bartov, 1993; Francis et al., 1996; Magnan & Cormier, 1997; Wilde, 2005). In the current study, we define our earnings-target deviation as annual net earnings excluding abnormal accruals less forecasted earnings, scaled by lagged assets. Our measure is similar to Magnan and Cormier (1997) and Gramlich and Sorensen (2004). We predict a negative relationship between earnings-forecast deviation and discretionary accruals. Earnings-forecast deviation is computed as follows:

$$\frac{\text{Earnings before discretionary accruals} - \text{Forecasted earnings}}{\text{Absolute value of forecasted earnings}}$$

Earnings management behavior might differ between forecasting firms whose underlying performance and activity level are below expectations, as well as those

Table 2a
Descriptive statistics median accruals

	Total accruals			Discretionary accruals estimated with IPO firms			Discretionary accruals estimated with SBF120 firms		
	Total sample	IPO with forecasts	IPO with no forecasts	Total sample	IPO with forecasts	IPO with no forecasts	Total sample	IPO with forecasts	IPO with no forecasts
IPO, <i>t</i> –1	–0.037	–0.034	–0.044	–	–	–	–	–	–
IPO year	–0.013	–0.012	–0.019	0.0004	0.001	–0.002	–0.004	0.002	–0.016
IPO, <i>t</i> +1	–0.049	–0.046	–0.054	–0.029	–0.051*	–0.008	–0.050	–0.085**	–0.041

Accruals are scaled by total assets.
* Significant at *p*<0.050.
** Significant at *p*<0.010.

whose underlying performance is above expectations. For a sample of Canadian firms, Magnan and Cormier (1997) show managers use discretionary accruals to mitigate earnings forecast errors regardless of whether pre-managed earnings are less, or greater than the earnings forecast; Gramlich and Sorensen (2004) find similar results for Danish firms.

Table 2b
Descriptive statistics forecasting firms median accruals in year following IPO based on earnings-forecast deviation and contractual and governance environment

	Total accruals	Discretionary accruals estimated with IPO firms	Discretionary accruals estimated with SBF120 firms
Negative earnings-forecast deviation	–0.028	–0.016	–0.018
Positive earnings-forecast deviation	–0.062 (<i>t</i> =0.150)	–0.069 (<i>t</i> =1.726)*	–0.095 (<i>t</i> =2.333)**
Negative earnings-forecast deviation —IAS/IFRS	–0.006 (<i>t</i> =1.169)	–0.026 (<i>t</i> =0.450)	–0.115 (<i>t</i> =0.502)
Positive earnings-forecast deviation —IAS/IFRS	–0.121 (<i>t</i> =0.304)	–0.071 (0.184)	–0.188 (<i>t</i> =0.171)
Negative earnings-forecast deviation —external board	–0.027 (<i>t</i> =0.157)	–0.003 (<i>t</i> =0.078)	–0.062 (<i>t</i> =0.755)
Positive earnings-forecast deviation —external board	–0.063 (<i>t</i> =0.550)	–0.067 (<i>t</i> =0.799)	–0.105 (<i>t</i> =0.800)
Negative earnings-forecast deviation —Big4 auditor	–0.055 (<i>t</i> =1.379)	–0.063 (<i>t</i> =1.277)	–0.071 (<i>t</i> =1.300)
Positive earnings-forecast deviation —Big4 auditor	–0.062 (<i>t</i> =0.699)	–0.071 (<i>t</i> =0.320)	–0.114 (<i>t</i> =0.166)
Negative earnings-forecast deviation —concentrated ownership	–0.027 (<i>t</i> =0.508)	–0.016 (<i>t</i> =0.113)	–0.027 (<i>t</i> =0.665)
Positive earnings-forecast deviation —concentrated ownership	–0.025 (<i>t</i> =1.534)	–0.069 (<i>t</i> =0.323)	–0.051 (<i>t</i> =0.326)

Accruals are scaled by total assets.
* Significant at *p*<0.10.
** Significant at *p*<0.050.

Table 3
Descriptive statistics independent variables

	Forecasting firms		Nonforecasting firms		
	Mean	Median	Mean	Median	Mean difference P value
Earnings-forecast deviation (before discretionary accruals)	-1.259	-0.893	–	–	–
discretionary accruals estimated with IPO firms					
Earnings-forecast deviation (before adjusted discretionary accruals) discretionary accruals estimated with SBF120 firms	-0.565	-0.396	–	–	–
IAS/IFRS compliance	0.110	0.000	0.200	0.000	0.029
External board	0.431	0.000	0.648	1.000	0.000
Auditor	0.450	0.000	0.830	1.000	0.000
Concentrated ownership	0.599	0.610	0.488	0.466	0.000
Retained ownership	0.796	0.800	0.733	0.785	0.010
Total assets (millions €)	537	22	19300	417	0.028
Leverage (total debt/total assets)	0.079	0.029	0.158	0.091	0.000
First market	–	–	0.500	0.000	–
Second market	0.200	0.000	0.150	0.000	0.181
New market	0.550	1.000	0.250	0.000	0.000
OTC market	0.250	0.000	0.100	0.000	0.001

These findings contrast with Kasznik (1999), who does not observe an earnings decrease in the discretionary accruals of a U.S. sample. However, Kasznik's study is not restricted to IPOs. Therefore, we add an interaction term (Positive forecast deviation) to capture the difference in earnings management between forecasters who meet their earnings target and those who do not. Positive forecast deviation is a dummy variable that takes a value of "1" (zero) if the deviation is greater than zero (less than zero).

5.1.1. IAS/IFRS compliance

An indicator variable is utilized, taking a value of "1" if a firm is complying with IASB standards, and 0 otherwise.

5.1.1.1. External board. An indicator variable is utilized; taking a value of "1" if a firm's board of directors is composed of a majority of external members, and "0" otherwise.

5.1.1.2. Auditor. An indicator variable is utilized; taking a value of "1" if a firm is audited by one of the "Big 4", and "0" otherwise.

5.1.1.3. Concentrated ownership (%). The variable Concentrated ownership is the percentage of ownership held by an entrepreneur, a family, or by another firm, i.e., control blocks of at least 5%.

5.1.1.4. Retained ownership (%). The percentage of retained ownership by the initial controlling stockholder(s) following the IPO, taking into account the primary issue and any

secondary sale that the controlling stockholder may have made. The information is gathered from the prospectus.

5.1.1.5. Size. Size is measured as the natural log of a firm's assets for the year during which the share issue occurred.

5.1.1.6. Leverage. Leverage is measured as total debt/total asset for the year during which the share issue occurred.

5.1.1.7. Market listing. Firms are either listed on the Second Market, New Market or OTC Market. There are no IPO forecasting firms listed on the First Market. Therefore, we add two dummy variables in the regression ($n-1$ Market listing): an indicator variable taking a value of "1" if a firm is listed in the Second Market, and "0" otherwise; an indicator variable taking a value of "1" if a firm is listed in over-the-counter Market, and "0" otherwise.

5.1.2. Stock market valuation

Consistent with Ohlson (1995) and Sloan (1996), the following model is used to explore the effect of earnings management on the value-relevance of earnings components:

$$\begin{aligned} \text{Stock Price}_{i,t} = & \beta_0 + \beta_1 \text{Book value per share}_{i,t} + \beta_2 \text{Cash flow per share}_{i,t} \\ & + \beta_3 \text{Discretionary accruals per share}_{i,t} \\ & + \beta_4 \text{Nondiscretionary accruals per share}_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (5)$$

6. Results

6.1. Earnings management

6.1.1. Univariate analyses

Table 2a exhibits some descriptive statistics on accruals for both forecasting and nonforecasting firms. As expected, accrual patterns do not differ significantly between forecasting and nonforecasting firms for the IPO year or for the previous year. We observe that for the total sample, discretionary accruals in percentage of assets are almost nonexistent at 0.0004. However, consistent with Hypothesis 1, in the year following an IPO, the magnitude of earnings management (discretionary accruals) is much higher for forecasters than for nonforecasters (-0.051 versus -0.008 ; $p < 0.10$). The same pattern is observed when we measure discretionary accruals based on SBF120 firms (-0.085 versus -0.041 ; $p = 0.010$).

Furthermore, as presented in Table 2b, for firms whose earnings are less than expected, the magnitude of discretionary accruals (-0.016 if estimated with IPO firms and -0.018 if measured with SFB120 firms) is much lower than for those firms that beat their earnings forecasts (-0.069 and -0.095 , respectively), the difference being significant ($p = 0.084$ and $p = 0.020$). The direction of the differences in accruals management between firms that beat their forecasts and those who did not reach their target tends to provide some support for Hypothesis 2; i.e., a forecasting firm's level of earnings management is higher if its actual performance is lower than expected.

Concerning the influence of contractual or governance constraints on earnings management, results show that income-increasing behavior (in the presence of negative Earnings-forecast Deviation) is reduced by the presence of a Big4 auditor (-0.063 versus -0.016 for discretionary accruals (estimated with IPO firms) for all forecasting firms ($p=0.202$ two-tailed) and -0.071 versus -0.018 for discretionary accruals estimated with SBF120 ($p=0.193$ two-tailed). This is consistent with prior evidence that a high-quality audit translates into lower accruals (Davidson and Neu, 1993; Becker et al., 1998) or more negative accruals (Cormier et al., 2000). We also observe the same pattern for income-increasing behavior in the presence of concentrated ownership, but only for total accruals (-0.025 versus -0.062) ($p=0.112$ two-tailed). This is consistent with our Hypothesis 6; i.e., the presence of closely held ownership is likely to reduce managerial incentive to increase reported earnings. As for compliance with IAS/IFRSs and the independence of the board of directors, we do not see any statistical difference in earnings management, nor in the sign of forecast deviation.

In Table 3, we present statistics about independent variables and differences between forecasting and nonforecasting firms. Compared with forecasting firms, nonforecasting firms tend to comply more with IAS/IFRS, to be audited by a Big4 firm to a larger extent, to have a board of directors controlled by external members, to be more indebted, and to be bigger. Furthermore, forecasting firms exhibit more concentrated and retained ownership at the IPO date than nonforecasting firms. Finally, while the New Market represents 55% of our sample of forecasting firms, it only represents 25% of our sample of nonforecasting firms.

6.1.2. Multivariate analyses

Table 4 shows the regression results on the determinants of earnings management among forecasting firms for our two measures of discretionary accruals. All four regressions are well specified and statistically significant at conventional levels (F statistic p value). The models are estimated using robust regression. We calculate standardized DFIT and exclude all observations with $DFIT > 1$ (identified using the Belsley-Kuh-Welsch (1980) procedure, Hair et al., 1998, p. 218). The models are then re-estimated with coefficient tests based on White's t -statistics, since Breusch–Pagan statistics show the presence of heteroscedasticity (chi-square of 3.20, $p=0.073$).

We first estimate individual regressions on the relationship between Discretionary Accruals (estimated with IPO firms) and Earnings-forecast deviation. Results document that a forecasting firm's underlying Earnings-forecast Deviation is likely to manage its earnings figure.

The regression is statistically significant (F statistic p value = 0.004) with an adjusted R -squared of 13.6%. Consistent with Hypothesis 2, forecasting firms whose earnings (earnings before discretionary accruals) are less than predicted tend to increase their level of earnings management (Coefficient: -0.022 ; $p < 0.001$),¹³ a behavior that is not different from forecasting firms with Positive Earnings-forecast deviation (Interaction term coefficient: 0.023 ; $p = 0.377$). A forecasting firm's level of earnings management is lower if its actual earnings are greater than expected. Our result suggests a symmetric behavior; i.e., a

¹³ Since Earnings-forecast Deviation has a negative (positive) sign when a firm does not (does) meet its forecast, a negative (positive) regression coefficient implies positive (negative) accruals management; i.e. $(-)(-) = (+)$ if actual results are below expectations; $(-)(+) = (-)$ if actual results are above expectations.

Table 4
Relation between earnings management and IPO firms: impact of earnings-forecast deviation and contractual and governance environment

Dependent variable: discretionary accruals					
	Sign	Discretionary accruals estimated with IPO firms		Discretionary accruals estimated with SBF120 firms	
		Positive earnings-forecast deviation	Global model	Positive earnings-forecast deviation	Global model
Intercept		−0.001 (0.001) ^a	−0.264 (0.338)	0.102 (0.002)	−0.718 (0.100)
Earnings-forecast deviation	−	−0.022 (0.001)	−0.032 (0.001)	−0.035 (0.003)	−0.048 (0.002)
Earnings-forecast Deviation * 1/0 * Positive Earnings-forecast Deviation	±	0.023 (0.377)		0.030 (0.342)	
Earnings-forecast Deviation * IAS/IFRS	+		−0.044 (0.208)		−0.111 (0.007)
Earnings-forecast Deviation * External board	+		−0.001 (0.613)		0.014 (0.237)
Earnings-forecast Deviation * Auditor	+		0.034 (0.001)		0.024 (0.042)
Earnings-forecast Deviation * Concentrated ownership	+		0.027 (0.028)		0.028 (0.075)
<i>Main effect</i>					
IAS/IFRS Compliance	±		−0.061 (0.210)		−0.035 (0.614)
External board	±		0.242 (0.411)		0.015 (0.735)
Auditor	±		−0.013 (0.679)		0.030 (0.509)
Concentrated ownership	±		−0.010 (0.778)		0.058 (0.252)
Positive earnings-forecast deviation (1/0)	±	0.010 (0.801)			
<i>Control variables</i>					
Retained ownership	−		0.076 (0.395)		0.245 (0.073)
Size	−		0.008 (0.590)		0.021 (0.371)
Leverage	±		−0.020 (0.875)		−0.130 (0.510)
Second Market	±		0.051 (0.190)		0.093 (0.126)
OTC Market	±		0.021 (0.600)		0.068 (0.292)
N: 78		13.6%	16.9%	13.0%	20.6%
F-statistic p value		0.004	0.026	0.004	0.009
Number of outliers		3 obs.	4 obs.	2 obs.	1 obs.

^a One-tailed if specific prediction.

forecasting firm with actual activity level or performance greater than expected seems to engage in decreasing earnings management. The sign of the forecast deviation does affect management behavior regarding accruals. This finding is consistent with Magnan and Cormier (1997) and Gramlich and Sorensen (2004), but contrasts with Kasznik (1999) who does not observe earnings decreasing discretionary accruals for a U.S. sample.

In the third column of Table 4, we present the results for the global model, including four interaction terms with Earnings-forecast Deviation, the main effects, and other control variables. The regression is statistically significant (F statistics p value=0.026) and its

adjusted R-square is 16.9%. Consistent with H2, there is a negative relationship between Earnings-forecast Deviation (-0.032 , $p < 0.001$) and Discretionary Accruals. This relationship is moderated for firms audited by a Big4 (0.034 , $p < 0.001$) and firms with a Concentrated Ownership (0.027 , $p < 0.050$). Among control variables, only one variable has a marginally significant coefficient: firms listed on the Second Market would exhibit more earnings management than those listed on OTC Markets (0.051 ; $p = 0.190$) or in New Market (intercept = -0.001 ; $p < 0.001$). Results (not tabulated) remain similar if we restrict the analysis to negative Earnings-forecast deviations (52 observations), except that, as expected, the coefficient for Earnings-forecast deviation is slightly higher (-0.040 ; $p = 0.012$).

In columns 5 and 6, we replicate analyses by changing our measure of discretionary accruals. We are now estimating the nondiscretionary component of total accruals based on firms listed on the SBF120 French Index. Results are quite similar to those where nondiscretionary accruals are estimated based on IPO firms. Only two coefficients exhibit different results. Surprisingly, the coefficient for the interaction term Earnings-forecast Deviation*IAS/IFRS is negative as in the regression presented in column 4, but is now significant (-0.111 ; $p < 0.010$). This would suggest that voluntary compliance with international accounting standards increases the use of accounting discretion to manage earnings. The second coefficient, now significant, concerns Retained ownership (0.245 ; $p = 0.073$). The more ownership retained at the IPO, the more inclined managers are to increase earnings figures. This is also inconsistent with our expectation.

Furthermore, following Kasznik (1999) and Kothari et al. (2001), we compute an adjusted proxy for discretionary accruals, {adjusted discretionary accruals (ADJDA)}, as the difference between the original discretionary accruals (estimated with IPO firms) and the median discretionary accruals for the nonforecaster group, matched with the sample firm of forecasters, and scaled by total assets.

$$\frac{\text{Earnings before ADJDA} - \text{Forecasted earnings}}{\text{Absolute value of forecasted earnings}}$$

Results not tabulated are equivalent to those presented in column 4 of Table 4.

As another robustness check, we rely on DeAngelo's model (1986), using first differences as an alternative model to the one estimated with IPO firms (including change in Sales as a control variable). Results (not reported) are relatively consistent with those presented in Table 4. The only difference is that the coefficient for interaction terms of Auditor with Earnings-forecast Deviation is not significant anymore, while the term for External Board interaction becomes significant. As a second sensitivity analysis, we re-estimate the regression after dropping firms from the OTC Market, since these companies are less regulated and their stocks are not traded as much as others. Results (not tabulated) are similar to those provided in Table 4.

6.2. Selection bias

Selection bias occurs when information on the dependent variable for parts of observations is missing. During the current study, while estimating the effect forecasts have on earnings management, we faced this problem because many firms did not issue

forecasts. Kasznik (1999) argues that an abnormal level of discretionary accruals might motivate the issuance of a forecast, or both forecasts and discretionary accruals could be simultaneously determined as part of an overall reporting strategy.

In the Heckman procedure (Heckman, 1979; Lee, 1983; Abdel-khalik, 1990), the residuals of the selection-equation in a Probit/Logit analysis (Forecasting/Nonforecasting) are used to construct a selection-bias control factor, i.e., the Inverse Mills ratio:

$$\begin{aligned} \text{Expected value of forecasting/Nonforecasting} \\ = \alpha + \alpha_1 \text{ Retained ownership} + \alpha_2 \text{ Size} + \alpha_3 \text{ Leverage} + \alpha_4 \text{ Second Market} \\ + \alpha_5 \text{ OTC Market} + \alpha_6 \text{ Industry} \end{aligned}$$

For this procedure, we exclude observations from the First Market since these observations are only for nonforecasting firms. In the second step of the Heckman procedure, from the expected probability value, we use the selection-bias control factor (Inverse Mills Ratio Lambda) as an additional independent variable that will control the selection bias in earnings management regressions.

First, results presented in Table 5 show that firm size (-0.283 ; $p < 0.050$), Leverage (-0.608 ; $p = 0.054$), and to a lesser extent, Retained ownership (1.635 ; $p < 0.100$) are the main factors that discriminate between a forecasting and a nonforecasting firm. Since the New Market variable must be interpreted as a main effect in the intercept (5.397 ; $p = 0.022$), this means that firms listed on this Market are more inclined to release earnings forecasts. This is consistent with descriptive statistics presented in Table 3. Second, no industry coefficient was statistically significant at the conventional level of 0.10%.¹⁴

Since the Inverse Mills ratio is derived from a sample of firms that includes forecasting and nonforecasting firms, we now estimate discretionary accruals' regressions with a sample of 100 observations (forecasting and nonforecasting firms—18 nonforecasting firms from the First Market are dropped from the analysis). Once again, earnings-management models are estimated using robust regressions. We calculate standardized DFIT and exclude all observations with $DFIT > 1$. The models are then re-estimated with tests based on White's t -statistics, which is a necessary correction because Breush–Pagan statistics show heteroscedasticity (Chi-square of 14.38, $p < 0.001$).

The variable Earnings-forecast deviation takes the value of zero for nonforecasting firms. Consistent with Hypothesis 1, results presented in the fourth column of Table 5 show that discretionary accruals are affected by the decision to issue forecasts (-0.089 ; $p = 0.029$), even after controlling for the self-selection bias (the Inverse Mills Ratio is not statistically significant; coefficient of 0.006, $p = 0.655$). These findings conform to regression results presented in Table 4 restricted to forecasting firms.

In addition, consistent with Hypothesis 2, even after controlling for the decision to issue forecasts, the coefficient of the variable Earnings-forecast deviation remains a significant determinant of discretionary accruals (-0.013 ; $p = 0.069$). Results presented in the fifth

¹⁴ For the Logit estimation of the decision to issue forecasts, we also considered systematic risk (beta) in place of the variables Second Market and OTC Market. The coefficient for beta is negatively significant (coefficient = -0.994 ; $p < 0.001$), the significance of other variables' coefficients remains almost similar. However, results for discretionary-accruals estimation are not affected by this change.

Table 5

Relation between earnings management and IPO firms: impact of the decision to issue forecasts, earnings target deviation, contractual and governance environment (excluding first market firms) on the line dependent variable: discretionary accruals for forecasting and nonforecasting firms combined

Logit regression			OLS regression			
			Discretionary accruals estimated with IPO firms		Discretionary accruals estimated with SBF120 firms	
	Sign	Forecasting/ nonforecasting ^a	Earnings forecast variables	Global model	Earnings forecast variables	Global model
		5.397 (0.022) ^b	0.010 (0.778)	−0.039 (0.525)	0.046 (0.412)	0.088 (0.416)
Retained ownership	±	1.635 (0.098)				
Size	±	−0.283 (0.022)				
Leverage	±	−2.608 (0.054)				
Second Market	±	−0.040 (0.933)				
OTC Market	±	0.864 (0.208)				
Forecast 1/0	±		−0.089 (0.029)	−0.084 (0.085)	−0.155 (0.015)	−0.148 (0.090)
Earnings-forecast deviation	−		−0.023 (0.069)	−0.044 (0.002)	−0.033 (0.009)	−0.040 (0.003)
Earnings-forecast Deviation * 1/0 * Positive earnings-forecast deviation	±		0.016 (0.350)		0.034 (0.292)	
Positive earnings target deviation (1/0)	±		−0.018 (0.671)		−0.014 (0.815)	
Earnings-forecast deviation * IAS/IFRS	+			−0.005 (0.922)		−0.021 (0.754)
Earnings-forecast deviation * External board	+			−0.001 (0.955)		−0.022 (0.506)
Earnings-forecast deviation * Auditor	+			0.048 (0.002)		0.035 (0.000)
Earnings-forecast Deviation * Concentrated ownership	+			0.019 (0.157)		0.052 (0.049)
IAS/IFRS Compliance	±			−0.046 (0.560)		−0.091 (0.437)
External board	±			0.030 (0.433)		0.022 (0.720)
Auditor	±			0.019 (0.683)		−0.167 (0.016)
Concentrated ownership	±			0.033 (0.475)		0.002 (0.981)
Inverse Mills ratio (Lambda)	±		0.006 (0.655)	0.006 (0.733)	−0.004 (0.803)	−0.002 (0.548)
Nagelkerke R-square (classification rate)		17.8% (82.3%)				
Adjusted R-square			8.7% (0.025)	7.4% (0.046)	11.3% (0.023)	8.2% (0.020)
F-statistic p value						
N		100	100	100	100	100
Number of outliers		0 obs.	2 obs.	1 obs.	2 obs.	2 obs.

^a Coefficients for industry dummies not presented.

^b One-tailed if specific prediction.

Table 6a

Descriptive statistics on the line earnings forecast error in year following IPO

	Minimum	Maximum	Mean	Median	Standard deviation
Earnings forecast error (% of assets)	−0.290	1.520	0.190	0.069	0.290
Second market (17 firms)	−0.030	1.111	0.145	0.012	0.284
New market (41 firms)	−0.290	1.520	0.225	0.123	0.315
OTC market (20 firms)	−0.030	0.910	0.155	0.062	0.241

column of Table 5 for the global model are quite similar to those presented in Table 4 concerning the estimation of discretionary accruals restricted to forecasting firms. Since the coefficients on the inverse Mills ratios are insignificant, this suggests our regression results did not suffer significantly from self-selection bias. We also notice that while factors like a firm's size, leverage and market listing do not seem to affect earnings management (Table 4), they do affect the decision to issue earnings forecasts.

In the last two columns of Table 5, we replicate results for discretionary accruals estimated with SBF120 firms. Results are essentially similar to those estimated with IPO firms, the only exception being that the coefficient for the interaction term Earnings-forecast deviation * Concentrated ownership is now significant (0.052; $p < 0.050$).

6.3. Accruals management—additional analyses

Magnan and Cormier (1997) and Gramlich and Sorensen (2004) show that managers of IPO firms use discretionary accruals to mitigate earnings-forecast errors. Degeorge et al. (1999) show how thresholds induce earnings management. In Table 6a, results suggest that French IPO firms exhibit very optimistic earnings forecasts, since the mean earnings-forecast errors exceed 19% of total assets (median = 6.9%). Lastly, we present in Table 6b the relationship between earnings-target achievement (or missing) and earnings

Table 6b

Descriptive statistics on the line earnings forecast error^a and earnings management

	Discretionary accruals estimated with IPO firms**	Discretionary accruals estimated with SBF120 firms**	Working capital accruals**	Depreciation**
(1) Surpass or just meet the target	0.012	−0.009	0.158	−0.044
(2) Miss the target	−0.008	−0.012	0.161	−0.039
(3) Strongly miss the target	−0.114	−0.198	0.019	−0.084
(1) and (2) mean difference <i>p</i> value	0.535	0.954	0.967	0.692
(1) and (3) mean difference <i>p</i> value	0.009	0.003	0.376	0.049
(2) and (3) mean difference <i>p</i> value	0.000	0.001	0.156	0.003
(1) Earnings forecast error ranging from −0.29 to 0.00 ($n = 13$)	First quartile 25%			
(2) Earnings forecast error > 0 and < 0.070 ($n = 27$)	Second quartile 25% to 50%			
(3) Earnings forecast error > 0.070 ($n = 38$)	Third quartile 50% to 100%			

^a (Forecasted Earnings − Net Earnings)/Total Assets.

discretionary accruals and nondiscretionary accruals. In this section, we only present results for models of discretionary accruals estimated with IPO firms since we obtain equivalent results with SBF 120 estimation.

First, Table 7 documents the usefulness of earnings components for pricing the stock of French firms. The results are quite similar for the IPO year and the following year, even though we would expect discretionary accruals to differ between the two years. In the year following the IPO, firms are more subject to earnings management since these firms issued earnings forecasts in the IPO year. This result would indicate that French investors do not see through earnings manipulation and do not change the earnings multiple to assess stock market value. To further explore that finding, in Table 8, we split discretionary and nondiscretionary accruals for forecasting and nonforecasting firms. Both coefficients for interaction terms (Accruals*Forecasting firm) are not statistically significant at conventional levels, suggesting that earnings management has no impact on the market valuation of earnings components.

This result is consistent with two alternative scenarios (Subramanyam, 1996): either managers improve value relevance of earnings by managing earnings and then communicating private information about future profitability of the firm; or discretionary accruals provide evidence that the stock market is functionally fixated on earnings in a relatively low-enforcement context.

7. Discussion and conclusion

Although IPO firms may be tempted to engage in earnings management in order to increase the offering price before going public, when issuing a forecast they rely on a more complex signal for their valuation. Their motivation to “manipulate” earnings before the offering is tempered by their stated goal to achieve a certain level of profitability in the period following the forecast. Due to the nature of self-reversing in accounting accruals, too much “manipulation” before issuing shares may actually hinder a firm’s effort to meet its forecast. Earnings-management practices in forecasting and nonforecasting firms are thus expected to differ in the period immediately following the share issue. Differences in earnings-management behavior are driven by: (1) the need to achieve publicly announced goals; (2) the closeness of a firm’s underlying performance to its publicly announced forecast; and (3) the nature of a firm’s contractual and governance constraints, especially cost related to leverage, independence of the board, audit quality, and ownership. Results in this study support—to some extent—the relevance of all three factors in explaining earnings-management behaviors of forecasting IPO firms.

Moreover, concerning the impact of accruals’ management on the quality of earnings figures for market valuation, our results suggest that French market participants assign value to discretionary accrual. This is consistent with two alternative scenarios: managerial discretion improves the ability of earnings to reflect economic value, or discretionary accruals are opportunistic but priced by an efficient market.

The results of this study provide some support for positive-accounting theory in a unique environment with forecasts identified as a form of implicit contract between a firm and its contracting partners. Furthermore, coefficients of determination obtained from regression analyses indicate that some contractual and governance constraints may play a major role in

a firm's accounting policy when there are strong incentives for managers to engage in earnings management. Our findings also highlight the importance of accounting-based signals in an IPO context and suggest that additional scrutiny be given to financial statements of IPO firms. As we mentioned earlier, the French reporting context is less rule-oriented and less subject to lawsuits and litigations than its U.S. counterpart, which makes it conducive to earnings management. However, financial markets are increasingly regulated in France and in Europe. This should lead to more reliable financial reporting in the future. In light of the findings in this study, it seems that earnings-management models developed essentially in Anglo-Saxon countries apply to the French context as well, at least in regard to the IPO.

As in all other earnings-management studies, the present study relies on specific measures of discretionary accruals that may not completely capture the underlying phenomenon. Future research may want to consider field investigations as a way of making the results of this study more tangible. Such investigations would also allow for a better specification of the relationship between contractual and governance constraints, and earnings management. It would also be interesting to extend the sample to a longer period, particularly beyond 2005, now that French firms are required to comply with IAS/IFRS. As another limitation, we posit that firms issuing forecasts want to meet or beat their forecasts one year later; however, managers may instead revise their forecasts in the following year. This has been taken into account.

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Appendix A. Euronext Paris Stock Exchange—characteristics of different markets

Euronext Paris	Companies listed	Listing criteria
Premier Marché (First Market)	Large companies based in France or other countries	Minimum market capitalization €700/800 million, 25% of equity offered to the public.
Second Marché (Second Market)	Medium-size companies and large companies prior to transfer to the Premier Marché	Minimum market capitalization €12/15 million, 10% of equity offered to the public.
Nouveau Marché (New Market)	High growth potential companies based in France or other countries	Minimum shareholders' equity €1.5 million, 100,000 shares to be offered to the public in an amount of at least €5 million, with at least half of these resulting from a capital increase, 20% of equity offered to public.

Source: www.euronext.com.

Starting from February 2005, a single list "Eurolist" is adopted to replace the three regulated markets, The *Premier Marché*, *Second Marché* and *Nouveau Marché*. Companies on Eurolist are identified by market capitalization: Small caps (market capitalization below €150 million), mid-caps (€150 million to €1 billion) and large caps (over €1 billion). They are subject to a single set of listing and disclosure rules reflecting the regulatory context in Europe. Finally, a new unregulated market called "Alternext" was created on May 2005 to meet the needs of small and mid-sized companies seeking simplified access to the stock market.

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The influence of conservatism and secrecy on the interpretation of verbal probability expressions in the Anglo and Latin cultural areas

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Abstract

We use Gray's [Gray, S.J. (1988). Towards a theory of cultural influence on the development of accounting systems internationally. *Abacus*, 24 (1), 1–15.] theory of the influence of culture on accounting to develop hypotheses about the effect the interaction of the accounting values of conservatism and secrecy and the context in which probability expressions are used in accounting standards will have on accountants' interpretations of those expressions. Specifically, we expect accountants in a high conservatism country to assign a higher (lower) numerical probability to verbal probability expressions that determine the threshold for the recognition of items that increase (decrease) income than accountants in a low conservatism country. We expect accountants in a high secrecy country to assign higher numerical probabilities to verbal probability expressions that establish the probability threshold for the disclosure of information than accountants in a low secrecy country. We survey professional accountants in Brazil (higher conservatism and higher secrecy) and in the United States (lower conservatism and lower secrecy) to test our hypotheses. We obtain some support for the first conservatism hypothesis related to the recognition of income-increasing items, but no support for the second conservatism hypothesis related to income-decreasing items. We obtain stronger results in support of our hypothesis related to secrecy and disclosure. This study contributes to the literature by investigating the impact of culture on interpretation of verbal probability expressions in the Latin cultural area and by testing Gray's theory, especially the secrecy hypothesis, at the individual-accountant level. © 2006 University of Illinois. All rights reserved.

Keywords: Probability expressions; Culture; Conservatism; Secrecy; IFRSs

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1. Introduction

A growing number of countries have adopted International Financial Reporting Standards (IFRSs) developed by the International Accounting Standards Board (IASB), and other countries plan to adopt or converge with IFRSs in the future. One goal of international accounting convergence is the comparability of financial statements across countries. Adoption of a common set of accounting standards is a necessary, but not sufficient, condition to achieve this goal. Accountants in different countries also must interpret and apply the common standards similarly.

Gray (1988) develops a theoretical framework of the influence of culture on accounting that posits causal relations between cultural (societal) values, four accounting values, and four dimensions of national accounting systems as shown in Fig. 1. Gray completes the theory by developing directional hypotheses that relate cultural values to each of the four accounting values, and by predicting how different cultural areas will rank on each of the accounting values. The framework predicts, for example, that a country that ranks high on the cultural dimension of uncertainty avoidance will rank high on the accounting value of secrecy, which will result in less disclosure being provided in financial reports in that country. The framework implies that cultural differences could cause accountants from different countries to apply a common accounting standard differently, thus possibly affecting the cross-national comparability of financial statements.

Of the four accounting values listed in Fig. 1, conservatism and secrecy most directly affect the nature of the information provided in corporate financial reports through their influence on the measurement of assets and profits (conservatism) and the disclosure of information (secrecy).¹ Cross-national differences in conservatism and secrecy have the potential to adversely affect the international comparability of financial statements.

The basic question addressed in this study is: “Do differences in culture cause accountants in different countries to interpret and apply the same financial reporting standards differently?” To date, the only study to specifically address this question is Douppnik and Richter’s (2004), and they do so only with respect to the influence of *conservatism* on accountants’ interpretation of accounting standards, in the Anglo and Germanic cultural areas.

The primary objectives of the current study are to test Gray’s secrecy hypothesis with respect to its implications for accountants’ interpretations of common-disclosure rules and to extend tests of Gray’s conservatism hypothesis to a cultural area that has not yet been examined. To achieve these objectives, we use the approach taken by Douppnik and Richter (2004) and ask a sample of accountants in an Anglo country (United States) and a more-developed Latin country (Brazil) to interpret verbal probability expressions used in IFRSs as thresholds for both recognition and disclosure decisions.

Through its influence on the accounting value of secrecy, we obtain strong support for the hypothesis that culture affects the interpretation of verbal probability expressions used in establishing the threshold for disclosures. Our results also provide support for the hypothesis that, through its influence on the accounting value of conservatism, culture

¹ Professionalism and uniformity primarily influence the authority for accounting standards and their enforcement.

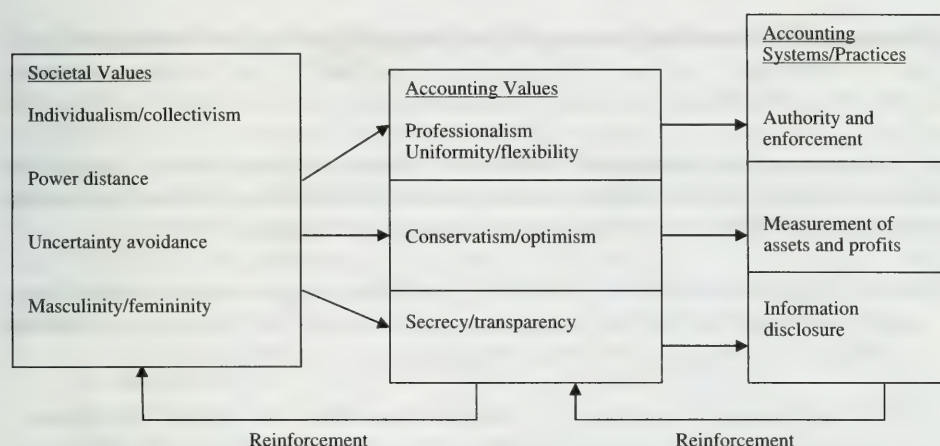


Fig. 1. Culture and accounting systems in practice.

affects the interpretation of verbal probability expressions used in establishing the threshold for recognizing elements that increase income. These results are consistent with those obtained by Doupnik and Richter (2004) and suggest that Gray's conservatism hypothesis applies when comparing recognition decisions made by accountants in the Anglo and more-developed Latin cultural areas.

We also conduct additional analyses to explore the possibility that Brazilian accountants working for Big 4 public accounting firms possess Anglo cultural values, which cause them to interpret probability expressions in a manner similar to U.S. accountants. We find no support for this; differences in the interpretation of probability expressions between U.S. and Big 4 Brazilian accountants are similar to differences between U.S. and Brazilian accountants in general.

This study contributes to the literature on both theoretical and practical levels. It adds to the body of research that has empirically tested various parts of Gray's theoretical framework by extending this research to a previously unexamined cultural area and by testing Gray's secrecy hypothesis at the individual accountant level. The results provide additional evidence supporting Gray's theory. On a practical level, the results of this study have negative implications for the consistency with which a common accounting standard might be applied across cultural areas, which could adversely affect the cross-national comparability of financial statements. This applies to the interpretation of both disclosure and recognition standards. Moreover, affiliation with Big 4 accounting firms does not appear to affect this result.

The remainder of this paper is organized as follows. We describe Gray's theoretical framework for culture's influence on accounting and summarize prior research testing the framework in the next Section. In Section 3, we develop hypotheses and describe the criteria used to select countries to test them. We describe the research instrument and method used to gather data in Section 4. In Section 5, we report results, and in the final section, we summarize and conclude.

2. Review of the theoretical framework and empirical tests of the framework

2.1. *Theory of the influence of culture on accounting*

Fig. 1 presents Gray's framework for the relation between cultural values (identified by Hofstede (1980)),² four accounting values, and four dimensions of national accounting systems. Gray (1988, p. 8) describes the four accounting values as follows:

Professionalism versus Statutory Control — a preference for the exercise of individual professional judgment and the maintenance of professional self-regulation as opposed to compliance with prescriptive legal requirements and statutory control.

Uniformity versus Flexibility — a preference for the enforcement of uniform accounting practices between companies and for the consistent use of such practices over time as opposed to flexibility in accordance with the perceived circumstances of individual companies.

Conservatism versus Optimism — a preference for a cautious approach to measurement so as to cope with the uncertainty of future events as opposed to a more optimistic, laissez-faire, risk-taking approach.

Secrecy versus Transparency — a preference for confidentiality and the restriction of disclosure of information about the business only to those who are closely involved with its management and financing as opposed to a more transparent, open and publicly accountable approach.

In identifying the dimensions that characterize accounting systems, Gray distinguishes between the statutory authority for accounting systems, and their enforcement, and the measurement and disclosure characteristics of accounting systems. The accounting values of Professionalism and Uniformity are posited to influence the authority for accounting rules and their enforcement; Conservatism influences the manner in which assets and profits are measured; and Secrecy affects the extent to which information is likely to be disclosed.

Gray's theoretical framework suggests that shared cultural values within a society lead to shared accounting values which in turn influence the nature of a nation's accounting system. Gray develops very specific directional hypotheses as to how Hofstede's (1980) cultural values affect the four accounting values, and Radebaugh and Gray (2002) incorporate long-term orientation into these hypotheses.³ Conservatism and secrecy most directly affect the measurement and disclosure of information in financial reports and

² The cultural (societal) values identified by Hofstede (1980) are: Power distance (the extent to which unequal power distribution in organizations is accepted); Individualism (the level of interdependence among individuals in a society); Uncertainty avoidance (the degree to which individuals in a society feel uncomfortable with uncertainty and ambiguity); and Masculinity (the extent to which a society emphasizes performance and achievement).

³ Hofstede and Bond (1988) add a fifth cultural dimension, originally referred to as Confucian Dynamism, to the four dimensions identified by Hofstede (1980). This dimension, later renamed as Long-term Orientation, was originally developed through the use of a Chinese Value Survey.

therefore are the accounting values that have the greatest potential to affect the cross-national comparability of financial statements. We limit our discussion to Gray's conservatism and secrecy hypotheses.

Gray (1988, p. 8) describes conservatism as "a preference for a cautious approach to measurement." Conservatism implies a tendency to defer recognition of assets and items that increase net income (revenues, profits, gains) and a tendency to accelerate the recognition of liabilities and items that decrease net income (expenses, losses). Gray's conservatism hypothesis as expanded by Radebaugh and Gray to include long-term orientation is developed as follows (Radebaugh and Gray, 2002, p. 47, emphasis added):

To what extent then can conservatism be linked to societal value dimensions? *Conservatism can be linked perhaps most closely with the uncertainty-avoidance dimension and the short-term versus long-term orientation.* A preference for more conservative measures of profits and assets is consistent with strong uncertainty avoidance that stems from a concern with security and a perceived need to adopt a cautious approach to cope with the uncertainty of future events. A less conservative approach to measurement is also consistent with a short-term orientation where quick results are expected and hence a more optimistic approach is adopted relative to conserving resources and investing for long-term results. *There also seems to be a link, if less strong, between high levels of individualism and masculinity, on the one hand, and weak uncertainty avoidance on the other, to the extent that an emphasis on individual achievement and performance is likely to foster a less conservative approach to measurement.*

Gray (1988, p. 8) describes the accounting value of secrecy as "a preference for confidentiality and the restriction of disclosure of information about the business." Secrecy manifests itself through a tendency to restrict the disclosure of information available to outsiders. The secrecy hypothesis is developed as follows (Radebaugh and Gray, 2002, p. 48, emphasis added):

To what extent then can secrecy be linked to societal value dimensions? A preference for *secrecy is consistent with strong uncertainty avoidance* because the latter stems from the need to restrict the disclosure of information to outsiders to avoid conflict and competition and to preserve security. *A close relationship between secrecy and power distance* also seems likely in that high power-distance societies are likely to be characterized by the restriction of information to preserve power inequalities. *Secrecy is also consistent with a preference for collectivism, as opposed to individualism*, in that its concern is for the interests of those most closely involved with the firm rather than external parties. *A long-term orientation also suggests a preference for secrecy* that is consistent with the need to conserve resources within the firm and ensure that funds are available for investment relative to the demands of shareholders and employees for higher payments. *A significant but possibly less important link with masculinity* also seems likely to the extent there will be a greater tendency to publicize such achievements and success.

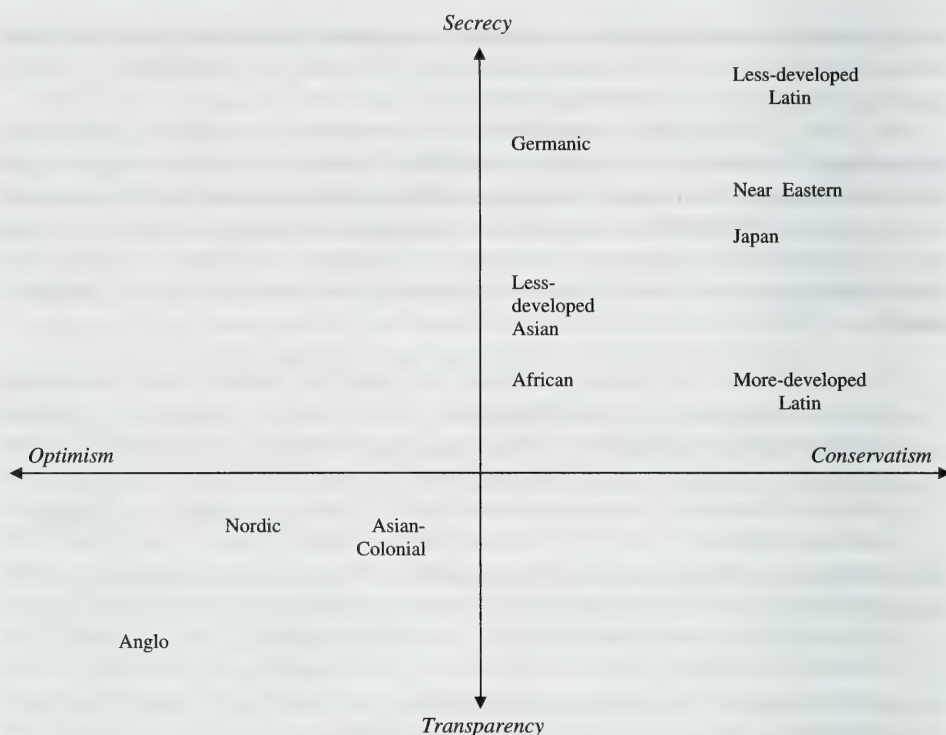


Fig. 2. Accounting systems: measurement and disclosure.

Hofstede (1980) identifies ten cultural areas with distinctly different patterns of cultural values. Gray applies his hypotheses to these cultural areas by positioning them along an optimism/conservatism continuum and a secrecy/transparency continuum, as shown in Fig. 2. The Anglo cultural area is hypothesized to be at the extreme optimism end and the extreme transparency end of these continua. Several cultural areas (more-developed Latin, Japan, Near Eastern, and less-developed Latin) are placed at the extreme conservatism end of the optimism/conservatism continuum and the Less-developed Latin area is placed at the extreme secrecy end of the secrecy/transparency continuum.

2.2. Empirical tests of Gray's framework

Gray's theoretical framework is universal in that it identifies culture as a source of the differences in accounting systems that exist across all countries and cultural areas. Determining the extent to which the theory holds is of academic interest but has practical implications as well.

Douppnik and Tsakumis (2004) provide a comprehensive review of the literature that has examined one or more relations embodied in Gray's theoretical framework. The majority of studies testing Gray's framework use archival data at the country level to examine the relation between Hofstede's cultural dimensions and one or more aspects of national

accounting systems. Most of this research focuses on Gray's secrecy hypothesis, examining the relation between cultural values and disclosures provided in corporate financial reports (Gray & Vint, 1995; Hope, 2002; Jaggi & Low, 2000; Wingate, 1997; Zarzeski, 1996). Three studies also examine Gray's conservatism hypothesis, studying the link between culture and measurement of assets and profits at the country level (Eddie, 1990; Salter & Niswander, 1995; Sudarwan & Fogarty, 1996). Country-level tests generally support the secrecy hypothesis but tests of the conservatism hypothesis yield mixed results.

Several studies have examined one or more aspects of Gray's framework using accountants' opinions as the data for analysis. Roberts and Salter (1999) conducted an opinion survey of accountants in 23 countries to test Gray's uniformity hypothesis. MacArthur (1996, 1999) examined comment letters submitted to the IASC on E32, "Comparability of Financial Statements," to determine whether preferences expressed by letter writers from different countries were consistent with Gray's hypotheses. These studies provide support for some of the relations between culture and accounting values posited by Gray, but not for others.

Two studies have used Gray's framework as the theoretical basis for investigating the influence of culture on accountants' interpretation and application of accounting standards (Doupnik & Richter, 2004; Shultz & Lopez, 2001). Schultz and Lopez (2001) use Gray (1988) and other literature to hypothesize that a country's legal system, major source of financing, and level of uncertainty avoidance cause differences in estimates of warranty expense made by accountants across countries. Consistent with their hypothesis, they find accountants in France and Germany (code-law legal system, nonequity-based financing system, and high uncertainty avoidance countries) estimate warranty expense more conservatively than U.S. accountants (common law, equity-based financing, and low uncertainty avoidance country). Schultz and Lopez (2001) did not test the influence of culture alone on warranty estimates. Their theoretical development and research design does not allow them to separate the impact of culture from the influence of legal systems and sources of financing on such estimates.

Doupnik and Richter (2004) is the only study published to date that focuses solely on the influence of culture on the interpretation and application of accounting standards. They use verbal probability expressions used in IFRSs as thresholds for recognizing assets and income as proxies for accounting standards. From Gray's theory they develop hypotheses with respect to how the accounting value of conservatism and the context in which verbal probability expressions are used interact to influence accountants' interpretations of those expressions.⁴ Through a survey of accountants in the United States and Germany, they test and find substantial support for their hypotheses. Consistent with Gray's framework that suggests German accountants are more conservative than U.S. accountants, German subjects tend to assign higher (lower) numerical probabilities than U.S. subjects to expressions used as the threshold for recognizing an asset (liability) or an increase (decrease) in income.

⁴ For example, they posit that when a probability expression such as "probable" is used to establish the threshold for recognition of an asset or an increase in income, accountants in more conservative countries will assign a higher numerical probability to that term to defer recognition. Conversely, when a probability expression is used to establish the threshold for recognition of a liability or decrease in income, accountants in more conservative countries will assign a lower numerical probability to the expression to accelerate recognition.

Doupnik and Richter (2004) find differences in the interpretation of accounting standards consistent with Gray's conservatism hypothesis using accountants from countries that are representative of two cultural areas: Anglo (United States) and Germanic (Germany). Gray's framework predicts differences across all cultural areas. The current study extends previous research to the more-developed Latin cultural area, an area that has not been subject to extensive study in the accounting domain. This study also adds to the stream of research that tests aspects of Gray's theory by examining the implications of his secrecy hypothesis for accountants' interpretation of accounting disclosure standards.

3. Research question, hypotheses, and country selection

3.1. Research question and hypotheses

The basic question we address in this study is: Do differences in culture cause accountants in different countries to interpret and apply the same financial reporting standards differently? To address this question we need to identify countries that are likely to have significant differences in cultural values and therefore are likely to have significantly different accounting values. We also need to identify accounting standards that require accountants to exercise their judgment, which could be influenced by their accounting values. For practical reasons, we are especially interested in the effect culture might have on accountants' interpretation and application of IFRSs.

Verbal probability expressions are used in several IFRSs to establish the threshold for disclosure of information or recognition of an accounting element. For example, *IAS 37* uses the expression "remote" to establish the threshold for the *disclosure* of a contingent liability and "probable" to establish the threshold for *recognition* of a provision. Probability expressions used as recognition thresholds are used to establish the threshold for *income-increasing* items (e.g., *IAS 18* requires recognition of revenue when economic benefits are "probable") as well as *income-decreasing* items (e.g., *IAS 11* requires recognition of a loss on construction contracts when the loss is "probable"). Doupnik and Richter (2004) successfully used requirements in IFRSs that rely on verbal probability expressions to represent accounting standards that require the application of judgment. We follow a similar approach in the current study.

Because verbal probability expressions are used to establish the threshold for recognition of various accounting elements, the level of conservatism shared by accountants in a country should influence the interpretation of those expressions. This leads to the following conservatism hypotheses (based on Gray's framework):

H1. Accountants in a country that scores higher in terms of uncertainty avoidance and long-term orientation and lower in terms of individualism and masculinity will assign a *higher* numerical probability to verbal probability expressions that determine the threshold for recognition of items that *increase* net income than accountants in a country that scores lower on uncertainty avoidance and long-term orientation and higher on individualism and masculinity.

H2. Accountants in a country that scores higher in terms of uncertainty avoidance and long-term orientation and lower in terms of individualism and masculinity will assign a *lower* numerical probability to verbal probability expressions that determine the threshold for recognition of items that *decrease* net income than accountants in a country that scores

lower on uncertainty avoidance and long-term orientation and higher on individualism and masculinity.

Because verbal probability expressions also are used to establish the threshold for the disclosure of various items of information, the level of secrecy shared by accountants in a country should influence the manner in which those expressions are interpreted.⁵ Gray's framework applied in this context leads to the following secrecy hypothesis:

H3. Accountants in a country that scores higher in terms of uncertainty avoidance, power distance, and long-term orientation and lower in terms of individualism and masculinity will assign a *higher* numerical probability to verbal probability expressions that determine the threshold for the disclosure of an item of information than accountants in a country that scores lower on uncertainty avoidance, power distance, and long-term orientation and higher on individualism and masculinity.

To test the conservatism and secrecy hypotheses we identify two countries likely to differ significantly on the accounting values of conservatism and secrecy.

3.2. Country selection

As noted earlier, Gray places the Anglo cultural area at the extreme optimism end of a conservatism/optimism continuum, and at the extreme transparency end of a secrecy/transparency continuum. Countries from this cultural area, which includes the United States, are natural candidates for inclusion in studies examining the impact of culture on accounting, as they act as a type of experimental control. Countries from any other cultural area are expected to exhibit a higher level of both conservatism and secrecy. We selected the United States to represent the Anglo culture.

To extend previous research beyond a comparison of countries from the Anglo and Germanic cultural areas, we looked for an economically significant non-Germanic country in a region of the world where little cultural accounting research has been conducted. Prior studies investigating the impact of culture on accountants' judgments have focused on accountants in the United States, Europe, and Asia-Pacific.⁶ As a region, Latin America has been relatively neglected in this stream of research.⁷

Brazil is the largest country in Latin America in area, population, and economic importance.⁸ While the Brazilian stock market is small compared to those in the United

⁵ For example, *IAS 37*, "Provisions, Contingent Liabilities and Contingent Assets," indicates that a contingent liability should be *disclosed* unless the likelihood of an outflow of resources is *remote* (para. 28).

⁶ The subjects comprising this body of research come from: Australia and China (Gul & Tsui, 1993), United States and Taiwan (Ho & Chang, 1994; Karnes, Sterner, Welker, & Wu, 1990), United States and Germany (Agacer & Douppnik, 1991; Douppnik & Richter, 2003, 2004), United States, France and Germany (Schultz & Lopez, 2001), Australia, India, and Malaysia (Patel, Harrison, & McKinnon, 2002), and United States and seven European countries (Arnold, Bernardi, & Neidermeyer, 2001).

⁷ Cohen, Pant, and Sharp's (1995) study of the influence of culture on auditors' ethical perceptions includes subjects from the U.S., Japan, and undisclosed countries in Latin America. Among the 23 countries surveyed by Roberts and Salter (1999), in addition to the U.S. and Canada, 11 countries are in Europe, eight are in Asia-Pacific, and two are Latin American (Brazil and Mexico).

⁸ Brazil is the fifth largest country in the world in terms of area and population, and has the ninth largest economy measured in terms of purchasing power parity-adjusted GDP (World Bank, 2003). Brazil is the ninth most popular destination for foreign direct investment; third among developing countries (United Nations, 2001).

Table 1
Hofstede’s Index Scores for Brazil and the United States

Cultural value	Brazil		United States
Power distance	69	>	40
Uncertainty avoidance	76	>	46
Individualism	38	<	91
Masculinity	49	<	62
Long-term orientation ^a	65	>	29

Source: Hofstede (1980).

^a Hofstede (2001).

States and other developed countries, it is the largest in Latin America, and many Brazilian firms cross-list on foreign stock exchanges.⁹ Among Latin American countries, Brazilian companies generally comprise the largest component in international stock mutual funds.¹⁰ The comparability of Brazilian financial statements with those of United States and other Anglo companies arguably is an important harmonization objective, making Brazil a worthy subject for cross-cultural accounting research.¹¹

The Brazilian accounting system can be characterized as law-based with taxation exerting a strong influence. Until the early 1990s, the country was wracked with high rates of inflation and financial statements were required to be adjusted for changes in the general price level. As is true in many countries, the Big 4 firms dominate the auditing industry.

According to Hofstede (1980), Brazil is one of the countries comprising a more-developed Latin cultural area. Gray places the more-developed Latin area at the extreme conservatism end of the conservatism/optimism continuum and on the secrecy side of the secrecy/transparency continuum. Table 1 presents Hofstede’s (1980) indices for Brazil and the United States. Brazil ranks substantially higher than the United States on uncertainty avoidance and long-term orientation, substantially lower on individualism, and somewhat lower on masculinity, all of which would indicate stronger conservatism among Brazilian accountants. These relationships, along with Brazil’s higher rank on power distance, also suggest that Brazilian accountants will exhibit a higher level of secrecy than U.S. accountants.

With the exception of long-term orientation, Hofstede’s index scores were developed in the 1970s. Although Hofstede suggests that culture remains relatively constant over time, there has been no comprehensive replication of his original study to verify that this is so. In addition, Hofstede’s index scores are based on a survey of IBM employees, most of whom presumably

⁹ In June 2005, 96 Brazilian companies had ADRs in the United States. A list of foreign companies with ADRs in the United States is available on the Bank of New York website at www.adrbny.com.

¹⁰ As examples, on March 31, 2005, Brazil comprised 53.2 percent of the holdings in the Fidelity Latin America Fund and 57.5 percent of the holdings in the Merrill Lynch Latin America Fund (Mexico was second at 36.7% and 31.9%, respectively); among Latin American countries, Brazil represented the greatest percentage of holdings by Vanguard’s International Growth, International Value, and Emerging Markets Stock Index funds.

¹¹ Mexico is the second most important economy in Latin America and would be an interesting country to include in a study that examines the impact of culture on the interpretation of probability expressions. However, because of the geographic proximity between Mexico and the United States and the significant economic and cultural interaction between the two countries, we believe Brazil is likely to have greater cultural distance from the United States and therefore represents a better comparison country to test Gray’s model. We defer the inclusion of Mexico in cross-cultural studies to future research.

were not accountants. Whether differences in index scores obtained from IBM employees are applicable to professional accountants is an open question. Montagna (1986) questions whether Hofstede's uncertainty avoidance index is necessarily valid for accountants suggesting that U.S. accountants are more likely to avoid uncertainty situations than members of other U.S. professions. Culture is the treatment variable in the current study, but it cannot be manipulated. To verify that U.S. and Brazilian accountants differ on cultural values in the direction identified by Hofstede, we incorporate Hofstede's Values Survey Module (VSM) into our research instrument and administer it to the accountants participating in the study.¹²

3.3. Influence of Big 4 firm affiliation

Soeters and Schreuder (1988) hypothesize that through self-selection and/or socialization Dutch accountants working for (at that time) Big 8 public accounting firms will possess values consistent with the Anglo culture. They administer Hofstede's VSM to a sample of Dutch accountants working for Dutch and Big 8 accounting firms and find evidence that supports their hypothesis.

If the self-selection/socialization hypothesis accurately describes Brazilian accountants, we could expect Big 4 Brazilian accountants to possess cultural values more similar to U.S. accountants than the general population of Brazilian accountants. This should result in the Big 4 Brazilian accountants and U.S. accountants being more similar in accounting values, which in turn should mean that there will be no significant differences in the interpretation of probability expressions.

To explore this possibility, we split the Brazilian sample into those accountants employed by Big 4 firms and those employed by other firms and we retest our hypotheses by comparing the probability expression interpretations of U.S. and Big 4 Brazilian accountants.

4. Methodology

To test the hypotheses, we selected 11 excerpts containing five different verbal probability expressions from seven different IFRSs (shown in the Appendix). We included the excerpts in a research instrument in which professional accountants in the United States and Brazil were asked to assign a numerical probability on a scale of 0% to 100% to each verbal probability expression. The excerpts cover a wide variety of accounting contexts in which probability expressions are used.

To ensure that the U.S. and Brazilian respondents differed on Hofstede's cultural values and in the direction expected, Hofstede's VSM as revised in 1994 was included as part of the research instrument.¹³ Hofstede (1994) cautions that "(i)ndexes calculated with the old and new formulas are not necessarily the same! However, the old and new formulas should produce approximately the same score differences between countries."

The research instrument consisted of four parts: (1) instructions, including two non-accounting examples; (2) excerpts from IFRSs; (3) Hofstede's VSM; and (4) demographic

¹² In two recent accounting studies researchers independently verified the cultural characteristics of the countries under study by incorporating Hofstede's VSM into their research materials (Patel, 2003; Patel et al., 2002).

¹³ Hofstede's VSM can be obtained from www.geert-hofstede.com and may be freely used for research purposes.

Table 2
Portuguese-language translations of IAS probability expressions

Probability expression	Portuguese translation
Probable	Provável
Reasonable assurance	Razoável segurança
Reasonable certainty	Razoável certeza
No longer probable	Não seja provável
Remote	Remoto/remota

questions. Instructions and demographic questions were first written in English, translated into Portuguese, and then translated back into English to ensure equivalence with the original. We used “VSM-Portugues,” the Portuguese translation of Hofstede’s VSM, to include VSM questions in the Portuguese version of the research instrument.¹⁴

To the extent available, we used Portuguese translations of International Accounting Standards (*Normas Internacionais de Contabilidade*) prepared by the Brazilian Institute of Accountants (IBRACON, 1998). Although *IAS 37* and *IAS 38* became effective in 1999, IBRACON had not yet translated these standards into Portuguese at the time data were gathered for this study. We included excerpts containing three probability expressions from these standards in the questionnaire: probable, virtually certain, and remote. “Probable” is used in other standards and is consistently translated by IBRACON as *provável*, so we used this translation in our instrument. “Remote” and “virtually certain” previously had not been translated by IBRACON. We literally translated these expressions as *remoto/remota* and *virtualmente certo/certa* and asked a small group of public accountants in São Paulo to verify that these were appropriate translations. This group agreed that *remoto/remota* was the best translation of remote, but did not believe that *virtualmente* was an expression likely to be used in a Portuguese-language Brazilian accounting standard. The group suggested *praticamente* (practically) *certo/certa* as an adequate translation that would be more readily interpretable by Brazilian accountants. As a result, we included *praticamente certo/certa* in the Portuguese language version of the questionnaire. Subsequent to data collection, IBRACON published its translation of *IAS 37* and *IAS 38*. “Remote” is translated as *remoto/remota*, but contrary to the expectations of our expert group “virtually certain” is translated as *virtualmente certo/certa*. Because our translation of “virtually certain” is inconsistent with that of IBRACON, and therefore would not be used by Brazilian accountants applying IFRSs, we exclude data related to “virtually certain” and *praticamente certo/certa* from our analysis.

Excerpts were presented in the same random order in each version of the questionnaire. Table 2 shows the Portuguese-language translations of the IAS probability expressions examined.

In the United States, the English-language version of the instrument was distributed to members of the audit staff in offices of international (Big 4) and local public accounting firms in the southeastern United States. In Brazil, the Portuguese-language version was distributed to audit staff members in offices of international and local public accounting firms in the state of São Paulo, and to public accountants participating in a continuing education seminar at the University of São Paulo.

¹⁴ VSM-Portugues uses the Portuguese spoken in Portugal, which differs in some ways from the Portuguese spoken in Brazil. We made changes to restate several phrases in Brazilian Portuguese.

Table 3
Response rates and respondent profiles

	Brazil	United States
Sample	200	200
Number of respondents	77	107
Response rate	38.5%	53.5%
Big 4	42	75
Other	35	32
Mean age (in years)	30.7	29.6
Mean years of professional experience as accountant	9.1	6.7
Nationality at birth same as country of residence	98.7%	93.5%

The independent variable in this study is culture, with two levels — Anglo and more-developed Latin. We use multiple probability expressions from IFRSs to address each hypothesis, resulting in multiple dependent variables. We test our hypotheses using multivariate analysis of variance (MANOVA), grouping probability expressions according to hypothesis. For those groups of expressions in which MANOVA indicates a significant global difference between the two nationalities, we then conduct univariate tests (ANOVA) to identify probability expressions for which significant differences exist.

5. Results

5.1. Responses

Table 3 reports response rates and respondent profiles. The response rate was higher in the United States than in Brazil. Each group of respondents had an average of more than

Table 4
Cultural value scores from VSM for sample of professional accountants in Brazil and the United States

Panel A: Full sample of Brazilian and U.S. respondents

Cultural value	Brazil <i>n</i> = 77		United States <i>n</i> = 107	Direction of difference consistent with Hofstede's Scores
Power distance	16	>	4	Yes
Uncertainty avoidance	55	>	28	Yes
Individualism	97	<	115	Yes
Masculinity	49	>	32	No
Long-term orientation	69	>	38	Yes

Panel B: Brazilian sample split into respondents employed by Big 4 firms and other firms

Cultural value	Other firms <i>n</i> = 35		Big 4 firms <i>n</i> = 42
Power distance	16	>	15
Uncertainty avoidance	60	>	51
Individualism	87	<	105
Masculinity	61	>	39
Long-term orientation	70	>	68

6 years of professional experience. A larger percentage of U.S. respondents is employed by Big 4 firms. Almost all respondents were born in the country in which they work suggesting that the respondent groups are representative of their national cultures.

5.2. Cultural value scores

Panel A of Table 4 reports cultural-value scores for our two groups of respondents. The scores derived from our VSM are different from those obtained by Hofstede (1980) (reported in Table 1).¹⁵ However, with the exception of masculinity, the direction of differences on our VSM scores between Brazilian and U.S. accountants is consistent with the direction of differences in Hofstede's indices for these two countries. As noted earlier, Gray (1988) and Radebaugh and Gray (2002) view uncertainty avoidance and long-term orientation as having the greatest influence on conservatism, and these two values along with power distance and individualism are viewed as having a close relationship with secrecy. Our sample of Brazilian accountants has substantially higher scores on power distance, uncertainty avoidance, and long-term orientation and a somewhat lower score on individualism than the U.S. accountants in our sample. Only our VSM results for masculinity differ in direction from Hofstede's indices. Because Gray believes that masculinity has only a weak relation with the accounting values of conservatism and secrecy, we conclude that the cultural value scores obtained from our survey participants are consistent with our assumptions that Brazil is a higher conservatism and a higher secrecy culture than the United States. Based on the VSM scores we obtain, our Brazilian sample of accountants should exhibit greater conservatism and secrecy than the U.S. sample of accountants when interpreting verbal probability expressions used in IFRSs.

5.3. Tests of hypotheses

Table 5 summarizes our specific expectations with regard to whether U.S. or Brazilian accountants will assign a higher mean probability to the verbal probability expressions included in the research instrument. Probability expressions are grouped according to hypothesis. For example, *IAS 18* indicates that revenue should be recognized when "it is probable that economic benefits associated with the transaction will flow to the enterprise" (para. 14). In this context, "probable" is used as a threshold for the recognition of an item that *increases income*. If Brazilian accountants are *more conservative* and they want to defer income recognition, they should require a *higher numerical probability* (on a 0–100% scale) to meet the threshold "probable." The responses to this excerpt are used in testing H1 related to the recognition of increases in income. Five additional excerpts relate to this hypothesis.

As a further example, *IAS 11* indicates that a loss on a construction contract should be recognized "when it is probable that total contract costs will exceed total contract revenue" (para. 36). In this context, "probable" is used as the threshold for the recognition of an item

¹⁵ As noted earlier, Hofstede warns that administration of the VSM revised in 1994 will not necessarily result in scores similar to those he obtained from his original survey. Thus, the fact that our VSM results differ from Hofstede's is not surprising. Indeed, Soeters and Schreuder (1988) administered the original VSM to a group of Dutch accountants and obtained scores that were different from Hofstede's. In the extreme case they obtained a *negative* score on uncertainty avoidance. Thus, replication of Hofstede's scores using accountants is not necessarily to be expected.

Table 5
Expectations for differences in mean numerical probabilities between Brazilian (BR) and U.S. (US) professional accountants in the interpretation of in-context probability expressions

IAS#	Probability expression	Context	Impact on income	Expectation
<i>H1: Recognition of increases in income</i>				
8	Probable	Revenue	+	BR>US
20	Reasonable assurance	Government grants	+	BR>US
11	Probable	Construction contracts	+	BR>US
17	Reasonably certain	Leases	+	BR>US
38	Probable	Development costs	+	BR>US
12	Probable	Deferred tax asset	+	BR>US
<i>H2: Recognition of decreases in income</i>				
11	Probable	Construction contract loss	–	US>BR
12	No longer probable	Deferred tax asset	–	US>BR
37	Probable	Provision	–	US>BR
<i>H3: Disclosure</i>				
37	Remote	Contingent liability	none	BR>US
37	Probable	Contingent asset	none	BR>US

that *decreases income*. If Brazilian accountants are more conservative and they have a preference to accelerate the recognition of a decrease in income, they should require a *lower numerical probability* to meet the “probable” threshold. This excerpt, along with two others, is used in testing H2 related to recognition of decreases in income.

With respect to the verbal probability expressions used in making *disclosure* decisions, regardless of whether the disclosure involves an asset (gain) or a liability (loss), we expect Brazilian accountants to establish higher numerical probability thresholds in order to defer or avoid making the disclosure. Responses to the IFRS excerpts related to the disclosure of contingent liabilities and contingent assets are used to test H3.

Table 6 reports the mean numerical probabilities assigned by the U.S. and Brazilian accountants to the 11 verbal probability expressions from selected IFRSs.¹⁶ We use MANOVA to determine whether a significant global difference exists between the U.S. and Brazilian respondents across the set of probability expressions relating to each hypothesis. We then examine responses to individual expressions to determine whether the direction of differences is consistent with our hypothesis and which expressions contribute to the differences between the two groups.

5.3.1. Tests of conservatism hypotheses — H1 and H2

MANOVA indicates a significant difference ($p=.044$) between the two groups of accountants across the six verbal probability expressions that relate to the recognition of increases in income. Panel A of Table 6 shows that differences in the mean probabilities assigned by the two groups occur in the predicted direction for four of the six expressions and univariate tests (ANOVA) indicate significant differences ($p<.05$) in three cases. Two

¹⁶ Although the research instrument includes excerpts involving 13 probability expressions, as noted earlier, we do not analyze the expression pair *virtually certain/praticamente certo(a)* included in two excerpts because of improper translation.

Table 6

Mean numerical probabilities assigned by Brazilian and U.S. professional accountants and results of statistical tests

Panel A: Full respondent sample

IAS#	Expression (context)	Brazil <i>n</i> =77	United States <i>n</i> =107	Direction expected	F	Sig.
<i>H1: Recognition of increases in income</i>						
Multivariate test					2.217	.044**
Univariate tests						
18	Probable (revenue)	78.43	> 73.58	yes	3.831	.026**
20	Reasonable assurance (gov't grants)	70.53	< 75.15	no	3.407	.034**
11	Probable (construction contracts)	77.65	> 74.94	yes	1.383	.121
17	Reasonable certainty (leases)	76.29	< 78.88	no	1.244	.133
38	Probable (development costs)	78.49	> 74.13	yes	2.883	.046**
12	Probable (deferred tax asset)	76.56	> 71.95	yes	3.045	.042**
<i>H2: Recognition of decreases in income</i>						
Multivariate test					.191	.903
Univariate tests						
11	Probable (construction contract loss)	73.19	> 71.56	no	.403	.263
12	No longer probable (deferred tax asset)	44.57	> 42.96	no	.178	.337
37	Probable (provision)	64.81	> 64.32	no	.035	.426
<i>H3: Disclosure</i>						
Multivariate test					13.031	.000***
Univariate tests						
37	Remote (contingent liability)	23.88	> 12.67	yes	23.971	.000***
37	Probable (contingent asset)	74.31	> 71.79	yes	.862	.177

Panel B: Reduced respondent sample

IAS#	Expression (context)	Brazil <i>n</i> =60	United States <i>n</i> =99	Expected direction	F	Sig.
<i>H1: Recognition of increases in income</i>						
Multivariate test					4.660	.000***
Univariate tests						
18	Probable (revenue)	80.50	> 75.18	yes	4.952	.014**
20	Reasonable assurance (gov't grants)	75.26	< 76.73	no	.438	.255
11	Probable (construction contracts)	79.17	> 75.24	yes	2.895	.046**
17	Reasonable certainty (leases)	76.50	< 80.96	no	4.180	.022**
38	Probable (development costs)	83.15	> 75.07	yes	12.920	.000***
12	Probable (deferred tax asset)	80.33	> 72.97	yes	10.550	.001***
<i>H2: Recognition of decreases in income</i>						
Multivariate test					.528	.663
Univariate tests						
11	Probable (construction contract loss)	74.58	> 71.99	no	1.045	.155
12	No longer probable (deferred tax asset)	46.43	> 43.30	no	.549	.230
37	Probable (provision)	65.85	> 65.33	no	.041	.420

Table 6 (continued)

IAS#	Expression (context)	Brazil <i>n</i> = 60	United States <i>n</i> = 99	Expected direction	F	Sig.
<i>H3: Disclosure</i>						
Multivariate test					14.969	.000***
Univariate tests						
37	Remote (contingent liability)	21.88	> 12.71	yes	26.486	.000***
37	Probable (contingent asset)	78.28	> 73.09	yes	4.413	.019**

Univariate test results (Sig.) are 1-tailed.

Statistically significant coefficients are denoted by: *** less than 0.01, ** less than 0.05, * less than 0.10.

differences are in the opposite direction of what was expected and one of these differences is significant at conventional levels ($p < .05$).

MANOVA indicates that there is no significant difference ($p = .903$) between the two groups across the three expressions comprising H2. The differences in the mean probabilities on the three expressions related to H2 are all in the opposite direction of what was predicted. However, none of the differences is statistically significant.

5.3.2. Test of secrecy hypothesis — H3

MANOVA indicates a significant difference ($p = .000$) between the two groups across the two expressions related to H3. Table 6 indicates that the differences in mean responses between the two groups occurs in the expected direction for both of the excerpts related to H3. The difference in mean numerical probabilities assigned to the term “remote” is large and highly significant. These results are consistent with the expectation that Brazilian accountants have a higher level of accounting secrecy and are less willing to provide disclosures.

A number of respondents provided responses to one or more expressions that are inconsistent with the range of probability commonly associated with those expressions. This phenomenon may indicate a lack of understanding or a lack of attention by respondents. For example, several respondents associated a probability of 50% or higher with the word “remote,” whereas others assigned a probability of less than 50% to the expressions “reasonable assurance,” “reasonable certainty,” or “probable.” The responses of these subjects were removed from the data set and statistical tests were conducted on the reduced sample. The results reported in Panel B of Table 6 on the reduced sample are generally consistent with those from the full sample. There is stronger support for H1 and H3 and still no support for H2.

5.4. Influence of Big 4 firm affiliation

To explore the possibility that Brazilian accountants working for Big 4 firms have accounting values similar to U.S. accountants, which in turn affects their interpretation of probability expressions, we split the Brazilian sample into those accountants employed by Big 4 firms and those employed by other firms. We calculate cultural value indices for both groups and we retest our hypotheses by comparing the probability expression interpretations of U.S. and Big 4 Brazilian accountants. Panel B of Table 4 reports cultural value scores for the two subsets of Brazilian accountants. For each cultural dimension, the Big 4 Brazilian accountants’ score is closer to that of the U.S. accountants than the scores obtained for the Brazilians working for other firms. However, the difference in scores between the Big 4 Brazilians and

Other Firm Brazilians is relatively small for power distance, uncertainty avoidance, and long-term orientation. Individualism and masculinity are the only cultural dimensions on which the Big 4 accountants move considerably closer to the United States' score.¹⁷

Table 7 reports the results of statistical tests comparing the responses of Big 4 Brazilian accountants and U.S. accountants. Panel A reports results without removing those subjects who provided inconsistent responses; Panel B reports the results of tests after removing those who provided inconsistent responses on one or more cases. Significant differences reported in Panels A and B of Table 7 are generally consistent with those reported in Panels A and B of Table 6. The Big 4 Brazilian accountants (both full and reduced samples) differ significantly from the U.S. accountants in their interpretation of "probable" when used in the contexts of recognizing revenues, development costs, deferred tax assets, and disclosing contingent assets, and in their interpretation of "remote" when used as the threshold for disclosing contingent liabilities. We also compare the mean responses of Big 4 and Other Firm Brazilian accountants and find only one significant difference between the two groups (not included in the tables). The Big 4 Brazilian accountants actually exhibit a higher level of conservatism than the Other Firm Brazilian accountants by assigning a higher numerical value to "probable" when used in the context of recognizing development costs as an asset. Thus, we find no evidence that employment by a Big 4 firm dampens the relative conservatism or secrecy exhibited by Brazilian accountants in interpreting probability expressions.

6. Summary and conclusions

We examined Gray's conservatism and secrecy hypotheses in the context of interpreting verbal probability expressions used as recognition and disclosure thresholds in IFRSs. We obtain substantial support for the hypothesis that, through its influence on the accounting value of conservatism, culture affects the interpretation of verbal probability expressions used to establish the threshold for recognizing *increases* in income. This is consistent with the results obtained by Douppnik and Richter (2004) and provides evidence of the generalizability of Gray's conservatism hypothesis to the more-developed Latin cultural area. We also obtain strong support for the hypothesis that, through its influence on the accounting value of secrecy, culture affects the interpretation of verbal probability expressions used to establish the threshold for when disclosures should be made. Future research investigating these hypotheses in other cultural areas is necessary before we can conclude that Gray's theory as applied to the interpretation of accounting standards by individual accountants is universally valid.

The practical implications of these results are important in that they suggest that national cultural values can affect accountants' interpretation of probability expressions used in IFRSs, and as a result, differences in cultural values across countries could lead to differences in recognition and disclosure decisions based on those interpretations. Application of accounting standards that include probability expressions as recognition or disclosure thresholds necessarily involves considerable accountant judgment. The generalizability of this study's findings to other areas requiring accountant judgment,

¹⁷ Because cultural dimension scores are measured only at the group level, and not at the individual level, it is not possible to evaluate the statistical significance of the differences in scores.

Table 7

Mean numerical probabilities assigned by Brazilian accountants employed by big four firms and U.S. professional accountants and results of tests

Panel A: Full sample of Big Four Brazilian and U.S. respondents

IAS#	Expression (context)	Brazil <i>n</i> =42		United States <i>n</i> =107	Expected Direction	F	Sig.
<i>H1: Recognition of increases in income</i>							
Multivariate test						3.269	.005***
Univariate tests							
18	Probable (revenue)	78.81	>	73.58	yes	3.117	.040**
20	Reasonable assurance (gov't grants)	71.70	<	75.15	no	1.231	.135
11	Probable (construction contracts)	79.21	>	74.94	yes	2.720	.051*
17	Reasonable certainty (leases)	76.50	<	78.88	no	.694	.203
38	Probable (development costs)	82.45	>	74.13	yes	9.075	.002***
12	Probable (deferred tax asset)	79.67	>	71.95	yes	8.117	.003***
<i>H2: Recognition of decreases in income</i>							
Multivariate test						1.409	.243
Univariate tests							
11	Probable (construction contract loss)	76.45	>	71.56	no	3.032	.042**
12	No longer probable (deferred tax asset)	47.64	>	42.96	no	1.071	.152
37	Probable (provision)	64.76	>	64.32	no	.024	.439
<i>H3: Disclosure</i>							
Multivariate test						18.488	.000***
Univariate tests							
37	Remote (contingent liability)	25.05	>	12.67	yes	35.223	.000***
37	Probable (contingent asset)	76.48	>	71.79	yes	2.448	.060*

Panel B: Reduced sample of Big Four Brazilian and U.S. respondents

IAS#	Expression (context)	Brazil <i>n</i> =35		United States <i>n</i> =99	Expected direction	F	Sig.
<i>H1: Recognition of increases in income</i>							
Multivariate test						3.381	.000***
Univariate tests							
18	Probable (revenue)	79.71	>	75.18	yes	2.475	.059*
20	Reasonable assurance (gov't grants)	77.76	>	76.73	yes	.154	.348
11	Probable (construction contracts)	78.77	>	75.24	yes	1.566	.107
17	Reasonable certainty (leases)	77.51	<	80.96	no	1.838	.089*
38	Probable (development costs)	84.51	>	75.07	yes	11.764	.001***
12	Probable (deferred tax asset)	78.77	>	72.97	yes	4.360	.020**
<i>H2: Recognition of decreases in income</i>							
Multivariate test						1.232	.301
Univariate tests							
11	Probable (construction contract loss)	75.46	>	71.99	no	1.332	.126
12	No longer probable (deferred tax asset)	48.31	>	43.30	no	.996	.160
37	Probable (provision)	63.43	<	65.33	yes	.408	.250

(continued on next page)

Table 7 (continued)

Panel B: Reduced sample of Big Four Brazilian and U.S. Respondents

IAS#	Expression (context)	Brazil <i>n</i> =42		United States <i>n</i> =107	Expected Direction	F	Sig.
<i>H3: Disclosure</i>							
Multivariate test						20.152	.000***
Univariate tests							
37	Remote (contingent liability)	24.49	>	12.71	yes	39.360	.000***
37	Probable (contingent asset)	77.63	>	73.09	yes	2.376	.063*

Univariate test results (Sig.) are 1-tailed.

Statistically significant coefficients are denoted by: *** less than 0.01, ** less than 0.05, * less than 0.10.

such as estimation of bad debts, is unknown but represents an important area of future research.

We do not find that Brazilian accountants employed by Big 4 public accounting firms exhibit less conservatism or less secrecy in their interpretations of probability expressions than accountants in non-Big 4 firms. This result implies that, at least in Brazil, we cannot assume that affiliation with a Big 4 firm by itself will mitigate the effect that culture otherwise might have on differences in interpretation of probability expressions. Future research might examine whether this result obtains in other cultures and in other contexts.

Financial reporting decisions based on probability thresholds are a function of two factors: (1) interpretation of the probability expression threshold, and (2) analysis of facts and circumstances to determine whether the probability threshold has been achieved. This study and prior research has focused on the first factor, whether national culture affects interpretation of probability thresholds. Future research might investigate the second component of the decision process; whether the accounting values of conservatism and secrecy systematically influence the manner in which accountants in different countries interpret the facts of a particular case. Either factor could lead to different financial reporting decisions being made in similar facts and circumstances, thereby reducing the cross-national comparability of financial reporting.

This study drew samples from specific regions within the United States and Brazil. To the extent that regional differences exist with respect to cultural and/or accounting values, the results may not be generalizable to other regions. In terms of practical implications, this is less of a problem in Brazil, because approximately 40% of Brazilian GDP is generated in the state of São Paulo. Examining whether differences in accountants' values exist across regions of the United States could be an interesting topic for future research.

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Appendix A. IAS excerpts containing verbal probability expressions**IAS 18 Revenue**

“Revenue from the sale of goods should be recognized when it is **probable** that the economic benefits associated with the transaction will flow to the enterprise.”

In this context, **probable** corresponds to a probability
greater than what percentage?

%

IAS 20 Accounting for Government Grants

“A government grant is not recognized as income until there is **reasonable assurance** that the enterprise will comply with the conditions attaching to it, and that the grant will be received. Receipt of a grant does not of itself provide conclusive evidence that the conditions attaching to the grant have been or will be fulfilled.”

In this context, **reasonable assurance** corresponds to a probability
greater than what percentage?

%

IAS 11 Construction Contracts

“When the outcome of a construction contract can be estimated reliably, contract revenue and contract costs associated with the construction contract should be recognized as revenue and expenses respectively by reference to the stage of completion of the contract activity at the balance sheet date (percentage of completion method).”

“In the case of a cost plus contract, the outcome of a construction contract can be estimated reliably when all the following conditions are satisfied:

- a) it is **probable** that the economic benefits associated with the contract will flow to the enterprise, and
- b) the contract costs attributable to the contract can be clearly identified and measured reliably.”

In this context, **probable** corresponds to a probability
greater than what percentage?

%

“When it is **probable** that total (construction) contract costs will exceed total contract revenue, the expected loss should be recognized as an expense immediately.”

In this context, **probable** corresponds to a probability
greater than what percentage?

%

IAS 17 Leases

“When a lease is classified as a finance lease, an asset and a liability are recognized at the inception of the lease at an amount equal to the fair value of the leased property. A finance lease gives rise to a depreciation expense for the **depreciable** asset. If there is **reasonable certainty** that the lessee will obtain ownership by the end of the lease term, the asset should be depreciated over the useful life of the asset (even if this is longer than the lease term).”

In this context, **reasonable certainty** corresponds to a probability *greater than* what percentage?

%

IAS 38 Development Costs as an Intangible Asset

“An intangible asset arising from development (or from the development phase of an internal project) should be recognized if, and only if, it is **probable** that future economic benefits that are attributable to the asset will flow to the enterprise.”

In this context, **probable** corresponds to a probability *greater than* what percentage?

%

IAS 12 Deferred Tax Assets

“Deferred tax assets are the amounts of income taxes recoverable in future periods. A deferred tax asset should be recognized for the carryforward of unused tax losses and unused tax credits to the extent that it is **probable** that future taxable profit will be available against which the unused tax losses and unused tax credits can be utilized.”

In this context, **probable** corresponds to a probability *greater than* what percentage?

%

“The carrying amount of a deferred tax asset should be reviewed at each balance sheet date. An enterprise should reduce the carrying amount of a deferred tax asset to the extent it is **no longer probable** that sufficient taxable profit will be available to allow the benefit of the deferred tax asset to be utilized.”

In this context, **no longer probable** corresponds to a probability *less than* what percentage?

%

IAS 38 Useful Life of an Intangible Asset

“An intangible asset should be amortized over its useful life. For an intangible asset that is a legal right (such as a copyright or patent), the useful life of the intangible asset should not exceed the period of the legal right unless the legal right is renewable and the renewal is **virtually certain**.”

In this context, **virtually certain** corresponds to a probability
greater than what percentage?

IAS 37 Provisions, Contingent Liabilities and Contingent Assets**Provisions**

“A provision is a liability of uncertain timing or amount. A provision (liability) and related expense should be recognized when it is **probable** that an outflow of resources embodying economic benefits will be required to settle the obligation. For the purpose of this Standard, an outflow of resources or other event is regarded as probable if it is more likely than not to occur, i.e., the probability that the event will occur is greater than the probability that it will not.”

In this context, **probable** corresponds to a probability
greater than what percentage?

Contingent Liabilities

“A contingent liability is a possible obligation whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events. Unless the possibility of any outflow of resources is **remote**, an enterprise should disclose for each class of contingent liability a brief description of the nature of the contingent liability and, if practicable, an estimate of its financial effect.”

In this context, **remote** corresponds to a probability
less than what percentage?

Contingent Assets

“A contingent asset is a possible asset whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the enterprise.”

“If the inflow of economic benefits from the contingent asset is **probable**, an enterprise should disclose a brief description of the nature of the contingent asset and, where practicable, an estimate of its financial effect.”

In this context, **probable** corresponds to a probability
greater than what percentage ?

“If, for a contingent asset, it has become **virtually certain** that an inflow of economic benefits will arise, the asset and the related income are recognized in the financial statements.”

In this context, **virtually certain** corresponds to a probability greater than what percentage?

%

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Board composition, regulatory regime and voluntary disclosure[☆]

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Abstract

This study, which examines the association between board monitoring and the level of voluntary disclosure, finds new evidence that firms with a higher proportion of independent directors on the board are associated with higher levels of voluntary disclosure. Although board size and CEO duality are not associated with voluntary disclosure, boards with a majority of independent directors have significantly higher levels of voluntary disclosure than firms with balanced boards. Notably, we find that the presence of an external governance mechanism, the regulatory environment, enhances the strength of the association between the proportion of independent directors and the level of voluntary disclosure. This association is some two to three times greater under a “disclosure-based” regulatory regime than under a “merit-based” regulatory regime.

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1. Introduction

Jensen and Meckling (1976) introduced the concept of misalignment of interests between owners and managers of firms when the ownership and control elements are not coincident as agency theory. The theory suggests that the potential conflict, coupled with the inability of owners to write costless perfect contracts and monitor the managers, inherently reduces the value of the firm as an economic entity. As such, the need for

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effective corporate-governance mechanisms in monitoring managerial actions in favor of shareholders' interests becomes a matter of necessity. Corporate governance is aptly defined by Denis and McConnell (2002, pp. 1–2) as "...the set of mechanisms – both institutional and market-based – that induce the self-interested controllers of a company... to make decisions that maximize the value of the company to its owners..."

This study examines the association between two key facets of firm-specific corporate governance in a "disclosure-based" regulatory regime: the board of directors and the level of voluntary disclosure.¹ Under a disclosure-based regulatory framework, market participants are expected to determine the merits of a firm's actions whereas in a "merit-based" regulatory framework, regulators decide on the propriety of firm transactions. Since voluntary disclosure is subject to managerial discretion, there is a need to align the information-disclosure tendencies of firms with the interests of shareholders. While mandated regulation of disclosure is a possible solution, management would have less discretion in disclosing selectively, and there is insufficient evidence on the benefits of regulating disclosure (Healy & Palepu, 2001). In effect, even if regulation of disclosure is effective, there is still the concern of which disclosures should be mandated, and which should be voluntary.² Thus, there is a need for an internal, as well as an external, monitoring mechanism to ensure sufficient disclosure.

We also examine the effect of different regulatory regimes on the board's role in supporting and monitoring voluntary disclosure. As suggested in Fama (1980) and Fama and Jensen (1983), directors (particularly outside directors) have reputational capital that is affected by their ability to discharge their monitoring duties. If their "monitoring duties" are influenced by the regulatory regime's emphasis on any particular mechanism of governance and/or protection of investor rights, the board may attune its monitoring emphasis accordingly.

The sample consists of 104 firms listed on the Singapore Stock Exchange (SGX) in the year 2000. A motivation for choosing this sample is that Singapore is a growing, but small, developed financial market with recent corporate reform demanding a richer disclosure environment and stronger corporate-governance practices.³ More importantly, the size of the Singapore market allows the development of a self-constructed voluntary disclosure index that not only eliminates the subjectivity and potential bias of analyst perceptions of voluntary disclosure, such as the Association of Investment Management and Research (AIMR) ratings, but also allows the results to be generalized.

Using a direct measure of voluntary disclosure, we find that boards with a larger proportion of independent, nonexecutive directors (our proxy for board-monitoring effectiveness) are significantly and positively associated with higher levels of voluntary disclosure. This is a notable contribution to the research on board monitoring, as it demonstrates for the first time the link between board independence and a direct measure of voluntary disclosure that can be generalized to the overall market. In addition, the results also indicate that firms with boards with a majority (> 50%) of independent directors have higher levels of voluntary disclosure

¹ There are few empirical studies (e.g., Chen & Jaggi, 2000; Williams, 2002) that provide evidence of a significant positive association between board and/or committee characteristics and disclosure.

² Voluntary disclosure of information by firms has favorable informational effects such as reducing information asymmetry (Heflin, Shaw, & Wild, 2001; Welker, 1995), reduction in the cost of capital (Botosan, 1997; Botosan & Plumlee, 2002), and enabling the market to incorporate more future earnings news into current returns (Lundholm & Myers, 2002; Miller & Piotroski, 2000; Luo et al., in press).

³ Corporate Finance Committee (Singapore) 1998. *Report of the Corporate Finance Committee*.

than firms with boards that do not have a majority of independent directors. We also demonstrate that the level of independence suggested by the Singaporean regulator (33%) does not provide a monitoring capacity that is supportive of higher levels of voluntary disclosure. Another contribution of this study is to examine the degree of influence that the regulatory regime has on board monitoring and voluntary disclosure. We find that the positive association between the proportion of independent directors and voluntary disclosure is highly significant and about two to three times stronger under a disclosure-based regulatory regime than under a merit-based regulatory regime. This is also a noteworthy finding, as it provides some initial evidence on the influence of regulatory philosophy on board monitoring. We also show that board size and CEO duality are not associated with the level of voluntary disclosure, and we perform a test for the presence of endogenous bias.

The rest of the study is organized as follows: Section 2 discusses the primary motivation for the study, relevant prior research, and the hypotheses; Section 3 describes the data and methodology while Section 4 presents the empirical results and sensitivity analyses. Section 5 concludes the study with final comments, limitations of the study and suggestions for future research.

2. Research motivations, prior research and hypothesis development

2.1. Board monitoring

As discussed in John and Senbet (1998), the effectiveness of a board in monitoring management is determined by its *composition*, *independence*, and *size*. Composition and independence are closely related, since board independence increases as the proportion of independent, outside directors increases. Fama (1980) views outside directors as referees whose task is to ensure that the board, as the ultimate internal monitor of managerial decision-making, protects the interests of the security holders. Fama and Jensen (1983) suggest that boards composed of a higher proportion of independent, outside directors (directors not involved in the direct operations of the firm) have greater control (ratification and monitoring) over managerial decisions. Independent directors have incentives to exercise their decision control in order to maintain reputational capital. However, with regard to outside or non-executive directors, a distinction between those who are affiliated with management through family or business relations (“grey” directors)⁴ and those who are truly independent (no relationship with management) is necessary.⁵ Although there is no direct theory pertaining to the role of grey directors on the monitoring effectiveness of the board, Carcello and Neal (1997) find a negative relationship between the percentage of executive and grey directors members on the audit committee and the likelihood of receiving an unqualified opinion. This supports the Fama and Jensen (1983) contention that

⁴ More specifically, s. 201B(2) of the Singapore Companies Act indicates that a director’s independence would be compromised if he or she has familial relations with a corporate officer or if he or she has any business, financial or other relation with the company that would interfere with the exercise of objective judgment in boardroom affairs.

⁵ Appendix 1a of the SGX listing manual suggests that independent non-executive directors should be free of any material business or financial connection with the firm.

a board's monitoring effectiveness should increase (decrease) with the proportion of independent (grey) outside directors.

Empirically, independent directors are found to impact a range of board decisions, such as the firing of nonperforming CEOs (Weisbach, 1988), resistance to greenmail payments (Kosnik, 1987) and the negotiation of tender offers (Byrd & Hickman, 1992). Beasley (1996) found that boards with higher proportions of outside directors have less likelihood of financial-statement fraud, while Dechow, Sloan, and Sweeney (1996) found that firms with boards dominated by management are more likely to incur accounting-enforcement actions by the SEC. Other empirical studies have found that firms with boards consisting of a higher proportion of outside directors result in less earnings management (Chtourou, Bedard, & Courteau, 2001; Klein, 2002; Peasnell, Pope, & Young, 2000; Xie, Davidson, & Dadalt, 2001), have larger earnings response coefficients (Andersen, Deli, & Gillan, 2003) and exhibit greater reporting conservatism (Beekes, Pope, & Young, 2002).

With regard to the impact of board composition on management's disclosure tendencies, the evidence is limited and mixed. Within the Williamson (1984) transaction-cost framework, the primary purpose of the board is to provide governance protection to the stockholders, and that voting representation on the board should include those constituencies with exposed residual claims that cannot be safeguarded by either arms-length market transactions or other bilateral arrangements (e.g., loan covenants). Thus, shareholders, as the risk beneficiaries, need representation on the board that is independent of management to shield their poorly defined assets from expropriation. Williamson (1984) argues that the specificity of asset transactions may create information asymmetries that can be mitigated by disclosure. Such disclosure provides greater transparency and enables investors to better anticipate future transactions for valuation purposes. Since disclosure is selective, the board is instrumental in constructing additional checks against managerial concealment and distortion, such as audit and other committees composed of independent directors.

Forker (1992) found no association between the fineness of mandatory disclosure of stock options and the proportion of non-executive directors. Ho and Wong (2001), using a direct measure of voluntary disclosure based on analyst perception, were unable to confirm a significant relation between the level of voluntary disclosure and board independence. Eng and Mak's (2003) direct measure of nonmandatory disclosure is significantly and negatively associated with the percentage of independent directors. Gul and Leung (2002) document a significant negative association between a direct measure of voluntary disclosure and the percentage of "expert" nonexecutive directors (proxied by multiple board memberships). These results run counter to the Williamson (1984) framework and the intuition that greater board independence is linked to more transparency and better monitoring. However, the Gul and Leung (2002) and Eng and Mak (2003) studies predate the Asian financial crisis and the ensuing call for increased corporate governance and transparency. In addition, Eng and Mak's (2003) non-executive director variable is described as the percentage of outside directors on the board, and is not linked to a regulatory definition that would exclude grey directors. Thus, their unexpected results could be attributed to the inclusion of grey directors in the outside-director variable. While the Gul and Leung (2002) study considers the effect of grey directors on board monitoring, their unanticipated results may arise from using a noisy proxy for director expertise (multiple directorships) that has been found to be significantly and negatively associated with firm value (Mak, Sequeira, & Yeo, 2003).

Alternatively, Leung and Horwitz (2004) showed a significant and positive association between voluntary segment disclosure and board independence, but only for firms with low ($\leq 25\%$) director ownership. Chen and Jaggi (2000) found a positive association between a firm's mandatory financial disclosures and the proportion of independent nonexecutive directors, and Williams (2002) found a positive association between the proportion of independent directors and firms' discretionary decisions to increase the level of independence on the audit committee above the suggested minimum.

Currently, there is no empirical research that has successfully linked board independence significantly and positively to a direct measure of voluntary disclosure. In fact, the few studies in this area that use a direct measure of voluntary disclosure have provided counterintuitive and unexpected results. While one could speculate that greater board independence obviates the need for higher levels of disclosure, there is no theory of the firm to support this contention. The Williamson (1984) theoretical framework and some supportive empirical evidence suggest that a board's monitoring effectiveness is related to its composition, and should be manifested in the level of firm transparency. We state the first hypothesis in alternative form:

H1. *There is a positive association between the proportion of independent nonexecutive directors and the level of voluntary disclosure.*

With respect to the *size* of the board, John and Senbet (1998) suggest that while the board's monitoring capacities increase as the number of members on the board increases, this benefit may be offset by the incremental cost of poorer communication and decision-making efficiencies that are often associated with large groups. Thus, with dispersed opinions and non-cohesiveness in viewpoints, a board that is too large may actually have diminished monitoring capabilities. Lipton and Lorsch (1992) and Jensen (1993) were consistent with this notion. Empirically, Yermack (1996) found that firm valuation is negatively related to the size of the board. Thus, there is no preponderance of theory or empirical evidence to suggest a relation between board size and levels of voluntary disclosure, and it remains an empirical issue. The second hypothesis in relation to board size and management voluntary disclosure is stated in the null:

H2. *There is no association between board size and the level of voluntary disclosure.*

2.2. Corporate governance and disclosure in Singapore

According to Denis and McConnell (2002), external corporate governance mechanisms include the market for corporate control and the regulatory system. In Singapore, the external governance mechanism is largely reliant on regulatory bodies such as the Monetary Authority of Singapore, because corporate takeovers are virtually nonexistent (Mak & Chng, 2000). In 1998 the Corporate Finance Committee (CFC) issued a consultative paper⁶ that recommended a change from a merit-based philosophy of market regulation to that of a disclosure-based philosophy in which market participants evaluate firm reporting practices. The Corporate Governance Committee (CGC) and the Disclosure and Accounting Standards Committee (DASC) issued separate reports in 2001 recommending improvements to current corporate

⁶ Corporate Finance Committee (Singapore) 1998. *Report of the Corporate Finance Committee*.

governance⁷ as well as corporate disclosure practices.⁸ Generally, the idea of more independent boards as well as more voluntary disclosure is stressed in both reports. Until 1999, Singapore relied on a predominantly merit-based philosophy to regulation, where regulators review and preside over firm transactions and decisions, lowering market incentives for voluntary disclosure. However, as discussed in the CFC report, a regulatory regime of this type effectively ignores the market's information efficiency. The CFC recommended a change from an authority-based regulatory framework to a disclosure-or market-based regulatory framework similar to that in the United States or the United Kingdom. In a framework of this kind, investors and shareholders determine the level of approval over firm transactions and activities, and enhanced disclosure becomes a necessity for the market to monitor company affairs. To ensure active participation in a disclosure-based regime, the CFC recommended an amendment to the Companies Act that would legally require companies to comply with GAAP, and that legal remedies, such as civil action for damages to investors, should be utilized to punish managers and directors of companies that do not exercise due care and diligence.

As information disclosure provides key decision inputs, the CFC called for a comprehensive and legally stated obligation to disclose, and recommended a "checklist approach" in conjunction with a "general-test approach" in defining a firm's prospectus and all continuing disclosure obligations. A checklist approach mandates specific disclosure items under detailed rules.⁹ In contrast, the general-test approach prescribes that companies should disclose all information that market participants require to make informed investment decisions.¹⁰ The general-test approach thus adopts a "true and fair" view to determine whether management has met the disclosure obligations. While the checklist approach simplifies compliance, it is difficult to determine what disclosure should be mandated. The general test approach overcomes this problem by placing the responsibility to disclose all other relevant information upon management. Thus, the CFC calls for a joint approach in prescribing disclosure obligations in Singapore similar to that in the United Kingdom¹¹ and Hong Kong.¹²

Corporate disclosure levels among Singaporean firms, while ahead of fellow East Asian countries, still significantly lag markets such as the United States and the United Kingdom (Mak & Chng, 2000). In a PWC (1997) survey¹³, it was found that 27% of companies have disclosure levels that met minimum required standards, 51% of firms exceed minimum standards marginally, while only 11% of firms strive for full disclosure. Since managerial discretion is involved in the content and timing of voluntary disclosure, the market must rely on other monitoring mechanisms to elicit disclosure from management above the

⁷ Corporate Governance Committee (Singapore) 2001. *Report of the Committee and Code of Corporate Governance*.

⁸ Disclosure and Accounting Standards Committee (Singapore) 2001. *Report of the Disclosure and Accounting Standards Committee*.

⁹ The United States is one example of a securities market employing such an approach. The Securities Act 1933 Section 10 details specific information to be disclosed.

¹⁰ Countries using such an approach include Australia where Corporations Law Section 1022 sets out the general test for prospectuses while Corporations Law Sections 1001A, 1001B, 1001C, and 1001D sets out the rules for continuing disclosure.

¹¹ Financial Services Act section 146 details the general disclosure test which supplements the detailed list of requirements in the Public Offers of Securities Regulations 1995.

¹² The Third Schedule to the Hong Kong Companies Ordinance sets out the general disclosure test and detailed requirements.

¹³ PriceWaterhouseCoopers (PWC) 1997. *Survey of Corporate Governance in Singapore*.

minimum requirements. The board's monitoring role encompasses financial reporting, and a more effective board should result in higher levels of disclosure by management.

2.3. Effects of the regulatory regime on board monitoring

LaPorta, Lopez-de-Silanes, Shleifer and Vishny (1998) state that the legal or regulatory system is a fundamental corporate-governance mechanism and a basic determinant of how corporate finance and corporate governance will evolve. Although changes in external governance mechanisms (i.e., regulatory change) have been examined, the focus has been on the extent and efficacy of voluntary disclosure (Brown, Taylor, & Walter, 1999) and on board monitoring and firm performance (Hossain, Prevost, & Rao, 2001). Neither of these papers found significant results that could be attributed to a change in the regulatory environment. As noted earlier, scant research has examined the relationship between board monitoring and voluntary disclosure, and little is known about the effects of regulatory change on this relationship. Denis and McConnell (2002) suggest that examining the interrelationships between external and internal corporate governance mechanisms can provide a more complete understanding of firm-specific internal governance mechanisms such as the board. Changes in the external regulatory regime are likely to impact firm internal governance, and board monitoring may change across different regulatory regimes in response to regulatory emphasis. Since a shift in regulatory philosophy is in process in Singapore, this presents an attractive opportunity to examine the effects of regulatory change on internal governance mechanisms.

In Singapore, the change in regulatory philosophy emphasizes increased board independence (one-third minimum), as well as the reduction of information asymmetry and increased transparency through enhanced voluntary disclosure. If the external regulatory regime significantly influences the monitoring role of the board within firms, it is likely that board monitoring of management's voluntary disclosure tendencies is stronger under a disclosure-based regulatory regime than under a merit-based regulatory regime. Fama (1980) suggests that independent directors are instrumental to ensuring the survival of the firm, and that they are motivated by the retention and enhancement of their reputational capital. Thus in a regulatory environment that encourages enhanced transparency and disclosure, independent directors are likely to promote higher levels of managerial disclosure to advance their reputation. Thus we examine if boards with greater monitoring capacities are associated with higher levels of voluntary disclosure, and the extent that the regulatory environment can influence board monitoring. This leads to the following hypothesis stated in the alternative form:

H3. *The association between the proportion of independent nonexecutive directors and the level of voluntary disclosure is stronger in a disclosure-based regulatory regime than in a merit-based regulatory regime.*

3. Data and methodology

3.1. Data

The sample used in the study consists of firms listed on the SGX at the end of the year 2000. We selected the year 2000 because it is reasonably representative of the disclosure-based

regulatory regime as well as for the availability of empirical proxies for both firm voluntary-disclosure levels and board monitoring. Two years after the CFC recommendations for a disclosure-based regulatory regime (made towards the end of 1998), the year 2000, would have been impacted by the recommendations on markets and firm policies. With regard to firm voluntary-disclosure levels, prior studies have examined the economic effects of disclosure using disclosure indices based on analysts' assessment of firm disclosure.¹⁴ However, as suggested by Botosan (1997), a sample of firms based on such measures is likely biased towards larger and heavily followed firms, and there may not be sufficient variation in firm characteristics to conduct powerful statistical tests. Moreover, given that Singapore firms do not have the extensive analyst coverage of U.S. firms, a sufficiently large and representative sample based on analyst scores is not available. Other professional firms such as Standard and Poor's provide evaluations of companies' corporate governance and disclosure practices¹⁵, but these are often provided upon company request, introducing a self-selection bias into the sample. We utilize a self-constructed empirical measure that sufficiently captures the cross-sectional variation of voluntary-disclosure levels over our sample of firms, as in Botosan (1997).

We hand-collect voluntary disclosure data from the fiscal 2000 annual report for 115 firms.¹⁶ Board variables are obtained from the Corporate Governance and Intellectual Capital (CGIC) database,¹⁷ and control variables are obtained from additional databases as necessary. Some firms are dropped from the sample in this process as a result of missing data. The final sample consists of 104 firms listed on the SGX spanning seven industries. In Table 1, panel A details the firm-selection process and panel B shows the distribution of sample firms by industry.

3.2. *Voluntary disclosure index*

Our direct measure of voluntary disclosure is a self-constructed index (*DScore*) that is based on a voluntary-disclosure checklist developed in Luo, Courtenay, and Hossain (in press) and administered on the sample firms' fiscal year 2000 annual reports. The checklist is based on relevant disclosure requirements of Singapore companies, a review of relevant literature¹⁸, the preliminary screening criteria by the Institute of Certified Public Accountants of Singapore for the Annual Report Awards 2001, and the framework for enhancing disclosure under the Steering Committee Report of the Business Reporting Research Project by the Financial Accounting Standards Board (FASB) in 2001. Additionally, individuals with specific knowledge of Singapore accounting practices and disclosure issues evaluated the checklist to eliminate any mandatory items. The final disclosure checklist consists of three broad categories: business data (40 individual items),

¹⁴ For example, Lang and Lundholm (1993), Lundholm and Myers (2002), and Heflin, Shaw, and Wild (2001) used the AIMR disclosure index.

¹⁵ Standard and Poor's Corporate Governance Scores, *Criteria, Methodology and Definitions*, July 2002.

¹⁶ The final sample excludes 24 firms in the finance sector due to differing reporting requirements. To minimize the effect of capital transactions on voluntary disclosure, 247 firms were eliminated that were listed since the end of fiscal 1995.

¹⁷ The CGIC database is a web-based public access database maintained by the Singapore Management University. It contains corporate governance data as well as intellectual capital data on SGX listed firms from 1998 to 2002. The url: <http://www.research.smu.edu.sg/faculty/cgic>.

¹⁸ Botosan (1997), Cooke (1989), Hossain, Tan, and Adams (1994).

Table 1

Summary of sample selection and distribution of sample firms by industry

Panel A: Sample selection process

Firms listed on both SGX Main Board and SESDAQ at 31 Dec 2000	480
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Less:

Finance sector firms	24
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Firms listed after fiscal 1995	247
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Firms with incomplete data	95
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Preliminary sample	115
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Less:

Firms with less than 120 trading days in fiscal year 2001	10
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Final Sample	104
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Percentage of non-finance sector SGX firms in sample	23%
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Panel B: Distribution of firms in sample by industry

Commerce	18
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Construction	5
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Transportation/Storage/Communication	9
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Manufacturing	33
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Multi-Industry	19
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Property	7
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Hotels and Services	13
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Total	104
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management's discussion and analysis (13 individual items) and forward-looking information (19 individual items).¹⁹ These three broad categories of voluntary disclosure were identified as important investment decision-making information by investors and financial analysts. As compared to Botosan's (1997) disclosure checklist over a single industry, our sample spans seven industries, which means the scores must be adjusted for industry-specific effects, e.g., proprietary cost, on disclosure levels. Following Lundholm and Myers (2002) and Luo et al. (in press), the individual disclosure scores were adjusted by first ranking each firm's disclosure level within its own industry in the sample and then expressing the rankings in percentiles as follows: $(\text{Rank in industry} - 1) / (\text{Number of firms in industry} - 1)$. The adjusted disclosure index (*ADSCORE*) ranges from zero to one, with zero being the lowest ranking firm in the industry and one being the highest-ranking firm in the industry. Table 2 shows the descriptive statistics of *DSCORE* and *ADSCORE* for the sample of 104 firms. The mean *DSCORE* is 28.91 and the standard deviation is about nine points with the maximum and minimum scores 43 points apart, which is qualitatively

¹⁹ As suggested in Leuz and Verrecchia (2000), extant voluntary-disclosure theories are broad enough to allow the interpretation of "voluntary disclosure level" as "voluntary disclosure quantity" and "voluntary disclosure quality". As such, in scoring the individual firm's annual report, the idea of quantity and quality must be incorporated. To do so, a score of "1" ("0") is awarded for the presence (absence) of a disclosure item. Since this method of scoring only captures quantity, a further score of "1" is awarded to the same disclosure item if quantitative guidance is given as well. As quantitative guidance is expected to enhance investment evaluation, it is perceived to increase the quality of the disclosure. This scoring system effectively incorporates the notion of quantity and quality in assessing the levels of voluntary disclosure of the sample of firms.

Table 2
Descriptive statistics for *DSCORE* and *ADSCORE* in 2000

Measure	<i>n</i>	Mean	SD	Min	25%	50%	75%	Max
<i>DSCORE</i> ^a	104	28.91	8.73	9.00	22.75	29.00	35.00	52.00
<i>ADSCORE</i> ^b	104	0.4956	0.3105	0.0000	0.1955	0.5263	0.7656	1.0000

^a *DSCORE* is the self-constructed firm-disclosure index based on a corporate voluntary disclosure checklist, designed to capture non-mandated firm disclosures. The checklist consists of three broad categories: business data (40 items), management's discussion and analysis (13 items) and forward-looking information (19 items). The checklist was administered on the sample firms' FY 2000 annual reports.

^b *ADSCORE* is the industry-adjusted voluntary-disclosure index, where the firms are first ranked within their own industry classifications based on the raw disclosure score (*DSCORE*). The ranked scores are then subsequently converted into percentiles via the formula: $(\text{Rank in industry} - 1) / (\text{Number of firms in industry} - 1)$.

similar to the variation in scores reported in Botosan (1997). The mean *ADSCORE* is 0.4956 with a standard deviation of 0.3105, suggesting enough variation within the sample for meaningful analysis. Pearson and Spearman's rho correlations between *DSCORE* and *ADSCORE* are 0.882 and 0.904, respectively, and are both significant at 1% (not reported), indicating that the industry-adjusted disclosure level score captures largely the same variation in disclosure levels in the cross-section of firms as *DSCORE*.

3.2.1. Validity of the voluntary disclosure index

While a self-constructed voluntary disclosure index is useful in capturing cross-sectional variation in disclosure levels, it requires subjective assessments by personnel administering the disclosure checklist (Botosan, 1997). Therefore, various tests are performed to assess the validity of the self-constructed index in capturing disclosure levels and the robustness of the index to the degree of subjective inference of individuals administering the disclosure checklist.

The broad components of the index, i.e., business data (*DSBUS*), management's discussion and analysis (*DSMDA*) and forward-looking information (*DSFSL*) are examined for internal consistency. Disclosure strategies of a firm are expected to be similar along all avenues, i.e., a firm choosing to disclose more with respect to its business operations and strategies would be reasonably expected to disclose more with respect to its future prospects (Botosan, 1997). Panel A of Table 3 presents both pair-wise parametric and non-parametric correlation coefficients between all the components of *DSCORE* and their correlations with *DSCORE*. As expected, all the components of *DSCORE* are highly correlated with each other and also with *DSCORE* ($p\text{-value} \leq 0.01$), indicating that the disclosure index consistently captures disclosure tendencies across different forms of disclosures in the annual reports.

Prior research has documented consistent relationships between the level of disclosure and various firm characteristics such as size, profitability, degree of leverage, analyst coverage, inside block ownership and listing status.²⁰ In addition, we add government ownership to the analysis, of significant government ownership in various industries is a characteristic of the Singapore corporate landscape.²¹ The impact of government ownership

²⁰ See, for example, Ahmed and Courtis (1999), Lang and Lundholm (1993, 1996), Leuz and Verrecchia (2000), Harris and Muller (1999), Mok, Lam, and Cheung (1992), and Finkelstein (1992).

²¹ Some examples are Keppel Land (Property), Singapore Telecommunications (Telecom), Singapore Airlines (Transportation), Keppel Corporation (Multi-Industry), Singapore Press Holdings (Media Comm), Singapore Petroleum Corporation (Petroleum Manufacturing).

Table 3

Correlation analysis of disclosure scores, its components and firm characteristics

Panel A: Pearson (Spearman's rho) correlations among the components of the disclosure index^a

	<i>DScore</i>	<i>DSBUS</i>	<i>DSMDA</i>	<i>DSFLS</i>
<i>DScore</i>	1.0000 (1.0000)			
<i>DSBUS</i>	0.8449 (0.8035)	1.0000 (1.0000)		
<i>DSMDA</i>	0.6611 (0.6207)	0.3016 (0.2335)	1.0000 (1.0000)	
<i>DSFLS</i>	0.7527 (0.7417)	0.3713 (0.3204)	0.4846 (0.4719)	1.0000 (1.0000)

Panel B: Correlations between *DScore* and various firm characteristics^b

	<i>MVAL</i> (+)	<i>TOTAST</i> (+)	<i>ROA</i> (+)	<i>LEV</i> (+)	<i>ANALYST</i> (+)	<i>INSOWN</i> (-)	<i>GLC</i> ^c (?)	<i>LSTSTA</i> (+)
Pearson Correlation ^d	0.2280 (0.0100)	0.3050 (0.0008)	0.2557 (0.0044)	-0.0300 (0.3812)	0.3782 (0.0001)	-0.2892 (0.0015)	0.2734 (0.0050)	0.0993 (0.1580)
Spearman's rho ^d	0.3385 (0.0002)	0.3719 (0.0001)	0.2566 (0.0090)	-0.0132 (0.4470)	0.3715 (0.0001)	-0.3045 (0.0009)	0.2992 (0.0020)	0.1209 (0.1108)
<i>n</i>	104	104	104	104	104	104	104	104

^a *DBUS*, *DSMDA* and *DSFLS* represent the disclosure levels relating to the three broad sub-categories of *DScore*, i.e., business data, management's discussion and analysis, and forward-looking information, respectively.^b *MVAL* and *TOTAST* are the market value of common stock and the book value of total assets of each firm as at the end of FY2000. *MVAL*, *TOTAST*, *ROA* and *LEV* are obtained from COMPUSTAT (Global). Assets prior to year 2000. *LEV* is the long-term debt-to-equity ratio as at the end of FY2000. *MVAL*, *TOTAST*, *ROA* and *LEV* are obtained from COMPUSTAT (Global). *ANALYST* is the number of analysts following a firm in 2000 and is obtained from I/B/E/S. *INSOWN* is a dummy variable indicating the presence of an inside block owner. An inside block owner is defined as any person who is in management, on the board of directors, or is a corporation whose shareholdings are substantially (>5%) held by management or directors of the firm, and is classified as one of the top five substantial shareholders in the FY2000 annual reports. *GLC* is a dummy variable indicating the presence of government ownership. A firm is classified as having government ownership if the Singapore government's corporate investment arm, Temasek Holdings Pte Ltd, is present as a substantial (>5%) shareholder. *LSTSTA* is a dummy variable indicating if a firm is listed on the Main Board ("1") or the SESDAQ ("0") listing board of the Singapore Exchange (SGX).^c As the direction of correlation is not predetermined, the two-tailed *p*-value is reported for *GLC*.^d One-tailed *p*-values in parentheses, predicted direction of correlation in parentheses.

on firm-disclosure policies is not clear. While the presence of a large state owner may impede management's propensity to disclose, government-owned corporations may disclose more to reflect the state's commitment to transparency and corporate-governance reform.

Correlation analysis was performed between the disclosure level index and the various firm characteristics mentioned above. Firm size was proxied by *MVAL*, the market value of common stock, and *TOTAST*, the book value of total assets of each firm. Profitability was proxied by each firm's 3-year average return-on-assets (*ROA*) prior to year 2000. Leverage, *LEV*, was measured as a firm's long-term debt-to-equity ratio and *ANALYST* is the number of analysts following a firm in the year 2000. Inside block ownership, *INSOWN*, is a binary variable where a "1" ("0") indicates the presence (absence) of an inside block owner. Government ownership, *GLC*, is a binary variable where a "1" ("0") indicates the presence (absence) of government ownership. The listing status, *LSTSTA*, is a binary variable where a "1" ("0") indicates a listing on the Main Board (SESDAQ) of the SGX. *MVAL*, *TOTAST*, *ROA*, and *LEV* were obtained from the COMPUSTAT (Global) database as of the end of fiscal 2000, while *ANALYST* is obtained from the Institutional Brokers' Estimates (I/B/E/S) database. *INSOWN* is obtained from the annual reports of each firm for the fiscal year ended 2000. If any of the top five shareholders are individuals in management positions or on the board of directors, or are corporations whose shareholdings are substantially held by management or directors of the firm, the firm will be classified as having an inside block owner.²² *GLC* classification is also obtained from the fiscal year 2000 annual reports. If the government's corporate investment arm, Temasek Holdings Pte Ltd, is present as a substantial shareholder, or is present via cross-holding, the firm is classified as having government ownership.²³ Significant positive relationships are expected for *TOTAST*, *MVAL*, *ROA*, *LEV*, *ANALYST*, and *LSTSTA*, while a negative relationship is expected for *INSOWN*. Although the relationship of disclosure with *GLC* is expected to be significant, no direction for the relationship is predicted.

Panel B of Table 3 presents the Pearson (parametric) and Spearman (non-parametric) correlation-coefficient measures. From the correlation analysis, *MVAL*, *TOTAST*, *ROA*, *ANALYST*, and *INSOWN* all have significant (p -value ≤ 0.01) and positive relationships with *DSCORE* as expected. *GLC* is also positively significant (p -value ≤ 0.01), indicating that government controlled firms tend to be more transparent in their disclosure as a result of the government's support of better governance and disclosure policies. The coefficient for *LEV* (–) is unexpected, but insignificant. Singaporean firms tend to obtain more short-term financing from bankers, thus reducing the need for more disclosure in anticipation of raising equity capital. *LSTSTA* is also insignificant although positively related to *DSCORE*. A plausible explanation is that the *LSTSTA* variable differentiated firms on the basis of whether they are listed on the Main Board or SESDAQ of the SGX, which are two listing boards on the same exchange. While Main Board listed firms may be expected to be subjected to more stringent requirements, the disclosure characteristics of the firms listed on

²² Following the definition in the Singapore Companies Act (s. 88), where a substantial shareholder is defined as one with 5% or more voting shares in the company.

²³ The status is cross-checked against Temasek Corporation's corporate website where listings of government-linked corporations are available.

the two boards may not be that different as compared to other studies where the firms are listed on different exchanges or in different countries. Apart from some unexpected results that are explainable by institutional differences, the correlation analysis of *DSCORE* with various firm characteristics supports the reliability of the measure in differentiating the firms in the sample by their disclosure levels.

In addition to the statistical analysis, an audit was performed on a sample of 20 (19%) randomly selected firms from the original sample of 104 to ensure that *DSCORE* is robust to being administered by different individuals. The voluntary disclosure checklist was redone on the year 2000 annual reports of these firms by different personnel. The audited scores for each firm were compared with the original scores. Out of a total of 1440 data points for the 20 firms, 160 exceptions (11%) were found. A Wilcoxon paired sign ranked test between the original scores and the audited scores demonstrates that there is no significant difference (p -value=0.324). The Spearman's rho between the audited scores and the original scores was 0.489 (p -value ≤ 0.01), indicating that the two sets of scores capture similar variation in disclosure levels, indicating that the *DSCORE* measure is relatively robust to the subjectivity of individual scorers.

A salient feature of our direct measure of voluntary disclosure is that it is neither based on analyst perception nor is it a result of a company request for a review of their governance mechanisms and transparency. However, if our disclosure index is valid, it should be positively correlated to measures of transparency that have been developed by investment advisory firms. As noted earlier, the analyst coverage of Singapore companies is not extensive, and the number of companies that have been rated for corporate governance or transparency is small. We obtained the scores of 43 Singapore companies that were rated for their disclosure tendencies by Credit Lyonnais Securities Asia (CLSA) as part of their overall corporate-governance rankings. Of the rated companies, 19 were included in our sample, and the correlation (not reported) between *ADSCORE* and the CLSA transparency rating was positive and significant (p -value ≤ 0.0001).

In summary, the validity of *DSCORE* in capturing the voluntary-disclosure levels of firms is supported by our analyses which show (1) the internal consistencies among the various components of *DSCORE*; (2) the significant correlations between *DSCORE* and various key firm characteristics; (3) the audit of *DSCORE* by different personnel, and (4) the correlation between *ADSCORE* and an external transparency rating.

3.3. Board variables

All data relating to board characteristics and composition are collected from the CGIC database, which is based on board disclosures in the year-end annual report. The classification of directors into independent (*IND*), grey (*GREY*), and executive (*EXED*) follows that of the CGIC database. Executive directors are current employees of the firm and independent directors are not related to the firm in any material aspect apart from being a board member. Grey directors are directors who are not current officers of a firm, but have existing relations (e.g., familial, material financial, or business) with a firm that might compromise independence.

Table 4 presents sample statistics on board-composition characteristics. Board size ranges from a minimum of four members to a maximum of 13 members with a mean of

Table 4
Descriptive statistics for board composition characteristics in 2000^a

Variable	<i>n</i>	Mean	SD	Min	25%	50%	75%	Max	No. of firms (% of sample)
Board size (<i>BFSIZE</i>)	104	7.712	1.889	4.000	6.000	8.000	9.000	13.000	
Number of independent directors (<i>IND</i>)	104	2.750	1.113	0.000	2.000	3.000	3.000	8.000	
Number of “grey” directors (<i>GREY</i>)	104	2.048	2.209	0.000	0.000	1.000	3.000	9.000	
Number of executive directors (<i>EXED</i>)	104	2.913	1.684	0.000	2.000	2.000	4.000	7.000	
Proportion of independent directors (<i>IND%</i>)	104	0.369	0.137	0.000	0.282	0.375	0.429	0.833	
Proportion of “grey” directors (<i>GREY%</i>)	104	0.243	0.226	0.000	0.000	0.200	0.400	0.900	
Number of firms with a majority of independent directors (<i>MAJIND</i>)	104								11 (0.106)
Number of firms with >33% of independent directors (<i>IND33%</i>)	104								68 (0.654)
Number of firms with a majority of “grey” directors (<i>MAJGREY</i>)	104								13 (0.125)
Number of firms with a majority of executive directors (<i>MAJEXED</i>)	104								28 (0.269)
Number of firms not dominated by any group of directors	104								52 (0.500)
Number of firms where the same person is both the CEO and Chairman (<i>DUALITY</i>)	104								30 (0.286)

^a Data for the board composition characteristics were obtained from the Corporate Governance and Intellectual Capital (CGIC) database maintained by the Singapore Management University.

about eight members, similar to those reported in Mak and Chng (2000) who found that the average board size in 1998 and 1999 was seven with a range of 4–15 members. With respect to board composition, the average proportion of executive, grey, and independent directors in our (Mak & Chng’s, 2000) sample consists of about 39% (42%) of executive directors, 24% (27%) of grey directors and 37% (30%) of independent directors.

With regard to board majority, the statistics reveal that 52 firms (50%) of the sample do not have any type of director with a majority of seats on the board.²⁴ Of the firms that have a majority of a group of directors, 11 (10.6%) have a majority of independent directors, 13 (12.5%) have a majority of grey directors, and 28 (26.9%) have a majority of executive directors. In the recent corporate-governance recommendations set forth by a private-sector led committee formed by the Singapore Ministry of Finance²⁵, it was suggested that a “strong independent element” is associated with boards with a minimum of one-third (33%) independent directors. As shown in Table 4, 68 firms (65%) already have boards consisting of 33% or more independent directors.

²⁴ By majority, it is meant that the board is composed of more than 50% of any particular type of directors, i.e. independent directors, grey directors, or executive directors.

²⁵ Corporate Governance Committee (Singapore) 2001. *Report of the Committee and Code of Corporate Governance*.

Table 5
Sample firm descriptive statistics for 2000^a

	<i>n</i>	Mean	SD	Min	25%	50%	75%	Max	No. of firms
<i>MVAL</i> (in million \$)	104	944.7	4261.7	14.0	54.2	134.0	300.2	37754.5	–
<i>TOTAST</i> (in million \$)	104	1323.5	4423.4	17.0	121.5	299.5	770.3	38371.7	–
<i>SALES</i> (in million \$)	104	298.7	815.3	4.7	40.6	100.1	196.8	5726.5	–
<i>ANALYST</i>	104	5.4	8.9	0.0	0.0	1.0	6.4	28.5	–
<i>ROA</i> (%)	104	1.24	7.11	–23.63	–1.15	1.56	4.26	18.63	–
<i>GROWTH</i> (%)	104	2.97	14.60	–36.21	–5.15	1.03	9.82	53.81	–
<i>LEV</i> (%)	104	58.63	77.19	0.00	11.50	45.05	87.59	466.14	–
<i>INSOWN</i>	104	–	–	–	–	–	–	–	62
<i>GLC</i>	104	–	–	–	–	–	–	–	11
<i>LSTSTA</i>	104	–	–	–	–	–	–	–	95

^a *MVAL* and *TOTAST* are the market value of common stock and the book value of total assets of each firm as at the end of FY2000. *ROA* is the 3-year average return on assets prior to year 2000. *GROWTH* is the 3-year average growth in total assets prior to year 2000. *LEV* is the long-term debt-to-equity ratio as at the end of fiscal year 2000. *MVAL*, *TOTAST*, *ROA*, *GROWTH* and *LEV* are obtained from COMPUSTAT (Global). *ANALYST* is the number of analysts following a firm in 2000 and is obtained from I/B/E/S. *INSOWN* is a dummy variable indicating the presence of an inside block owner. An inside block owner is defined as any person who is in management, on the board of directors, or is a corporation whose shareholdings are substantially (>5%) held by management of the firm, and is classified as one of the top five substantial shareholders in the FY2000 annual reports. *GLC* is a dummy variable indicating the presence of government ownership. A firm is classified as having government ownership if the Singapore government's corporate investment arm, Temasek Holdings Pte Ltd, is present as a substantial (>5%) shareholder. *LSTSTA* is a dummy variable indicating if a firm is listed on the Main Board ("1") or the SESDAQ ("0") listing board of the Singapore Exchange (SGX).

3.4. Firm characteristics

Table 5 presents the sample firm descriptive statistics. The sample includes a wide range of firm sizes by measures of *MVAL*, *TOTAST*, and *SALES*. The largest (smallest) firm has *MVAL*, *TOTAST*, and *SALES* values of \$3,775 (\$14) million, \$3,837 (\$17) million, and \$572 (\$5) million, respectively. In terms of analyst following, the mean (median) number of analysts per firm is 5.4 (1.0), implying a distribution that is highly skewed to the right. A closer examination reveals that as many as 49 firms receive no analyst coverage, in contrast with Botosan (1997), where mean firm coverage was 11.5 and all firms receive some analyst coverage. In terms of firm performance and growth, the statistics also suggest a wide amount of variation within the sample. The sample also includes 62 firms with an inside block owner, 11 government-linked firms and 95 Main Board listed firms.

3.5. Methodology

To determine if better board monitoring or board size is associated with enhanced voluntary disclosure as hypothesized in H1 and H2, we estimate the following general cross-sectional model:

$$DISC_i = \alpha + \sum_{p=1}^j \beta_p BOARD_{ip} + \sum_{q=1}^k \gamma_q CONTROL_{iq} + \varepsilon_i \tag{1}$$

where *DISC* represents: *DScore* (raw disclosure-level scores), *DRANK* (within sample disclosure-level percentiles) and *ADScore* (industry-adjusted disclosure-level percentiles); *BOARD* represents: *BSize* (board size), *IND%* (proportion of independent directors), *MAJIND* (indicator variable where “1” indicates boards with a majority of independent directors, “0” otherwise), *MAJGREY* (indicator variable where “1” indicates boards with a majority of grey directors, “0” otherwise), *MAJEXED* (indicator variable where “1” indicates boards with a majority of executive directors, “0” otherwise) and *DUALITY* (indicator variable where “1” indicates boards where the role of chairman and CEO is held by the same person, “0” otherwise); *CONTROL* represents: *INSOWN* (indicator variable where “1” indicates the presence of an inside block owner, “0” otherwise), *LN MVAL* (the log-transformed firm size), *ROA* (3-year average return on total assets), *LEV* (long-term debt-to-equity ratio), *GLC* (indicator variable where “1” indicates government ownership, “0” otherwise).

DISC is the voluntary disclosure level of firms proxied by the voluntary-disclosure index *DScore*. In addition, the ranked percentiles of the index (*DRANK*) and the industry-adjusted percentile ranks (*ADScore*) are also used in separate regressions.²⁶ *BOARD* represents the board-composition characteristics (e.g. *BSize*, *IND%*, etc.) described in Section 3.3. *DUALITY* is a binary variable included to control for the leadership structure of the board, where “1” indicates a board with the CEO also the chairperson and “0” indicates boards where there is a separation of the two roles. As suggested (e.g., Andersen, Deli, & Gillan, 2003; Dechow, Sloan, & Sweeney, 1996; Goyal & Park, 2002; Jensen, 1993), boards with CEOs also the chairperson are generally expected to exhibit weaker monitoring capabilities. In the context of disclosure however, results have been mixed. While Forker (1992) found a negative association between duality and the quality of share-option disclosure, Ho and Wong (2001) show no association between duality and voluntary disclosure. On the other hand, Gul and Leung (2002) document a significant and negative relationship between duality and voluntary disclosure. As such, the direction of the association between *DUALITY* and voluntary disclosure is not predicted a priori.

To control for other determinants of disclosure, significant covariates of disclosure are included as *CONTROL* variables. As discussed in Section 3.2.1, cross-sectional firm disclosures are expected to increase with firm size, firm profitability, leverage and analyst following (e.g. Ahmed & Courtis, 1999; Harris & Muller, 1999; Lang & Lundholm, 1993, 1996; Leuz & Verrecchia, 2000). Earlier correlation results (Table 3, panel B) show that government ownership results in increased disclosure. Thus, the logarithmic transformation of *MVAL*, together with *ROA*, *LEV*, and *GLC* are included as relevant control variables (see Section 3.2.1). *ANALYST* was not included, given the high correlation with firm size ($r=0.789$), as it is likely to induce multicollinearity among the control variables. In addition, inside block ownership (*INSOWN*) is also included. While inside block ownership may align management's interest with that of outside shareholders, Finkelstein (1992) suggests that block ownership entrenches management. As discussed in Denis and

²⁶ The *DRANK* measure follows that of Botosan (1997). It measures the relative levels of disclosure of the firms within the sample. The *ADScore* measure essentially measures the relative levels of disclosure of the sample firms within the same industry.

McConnell (2002), there are significant private benefits associated with block ownership.²⁷ Should management become entrenched as a result of block ownership and choose to maximize their private benefits associated with being an inside block owner, they may consequently disclose less information to maintain significant information asymmetry between themselves and outside shareholders to avoid external monitoring. Thus, the relationship between inside block ownership and disclosure is expected to be negative, in line with the correlation results (Table 3, panel B). While some prior research such as Chen and Jaggi (2000) and Hossain, Tan, and Adams (1994) suggest that audit firm size may have an impact on the disclosure policies of management, we do not control for the size/reputation of the audit firm as about 95% of the sample are audited by the “Big 5.”

4. Empirical results and analysis

4.1. Regression results for year 2000

Four separate cross-sectional regression models pertaining to the general model 1 were fitted to test hypotheses H1 and H2. Table 6 details the regression results. Models 1 and 2 include *BSIZE*, *IND%*, and *DUALITY* as the *BOARD* variables, and the *CONTROL* variables *INSOWN*, *LNVAL*, *ROA*, *LEV*, and *GLC* are added in model 2. In model 1, both *BSIZE* and *IND%* were positive and significant ($p\text{-value} \leq 0.05$) in all three specifications of voluntary-disclosure levels (*DSCORE*, *DRANK* and *ADSCORE*). However in model 2, *BSIZE* was no longer significant while *IND%* was still significant ($p\text{-value} \leq 0.05$). The results suggest that firms with boards consisting of a larger proportion of independent directors are associated with higher levels of voluntary disclosure, supporting H1. The results for *IND%* contrast with the results from the Eng and Mak (2003) paper that is based on 1995 Singapore data. They found an unanticipated negative and significant association between board independence and voluntary disclosure. The differing results could be caused by their variable (*OUTDIR*) used to proxy for board monitoring/independence. This variable is not described other than in the descriptive statistics (57% of board members), and differs from the descriptive statistics of board independence (Singapore data) in Mak and Chng (2000) for 1998 and 1999. They report descriptive statistics for independent directors (30%) and grey directors (27%) that are similar to the data in our study. As board composition does not change quickly (Denis & Sarin, 1999), it appears that the results in Eng and Mak (2003) may be driven by an inclusion of grey directors in the outside director variable used to proxy for board independence. *BSIZE* is insignificant in model 2 when control variables are included supporting the null hypothesis that board size does not affect disclosure level. In models 1 and 2, *DUALITY* was largely insignificant, consistent with the findings in Ho and Wong (2001), but in contrast to Gul and Leung (2002). Because *DUALITY* and *BSIZE* are likely to be affected by the magnitude of *IND%*, the models were re-estimated with only *DUALITY* and *BSIZE* as the board variables. If the results are driven by *IND%*, then the coefficients for these variables should be significant. The results (not

²⁷ For instance, Barclay and Holderness (1989) found that block trades are commonly priced at significant premiums to the market price, thus indicating that block owners expect benefits that are not available to other shareholders.

reported) show that the two variables are insignificant in the individual re-estimations. With respect to the *CONTROL* variables in model 2, *INSOWN* was negative and significant (p -value ≤ 0.05) in all specifications of disclosure level while *LNMV* and *ROA* were significant (p -value ≤ 0.05) in the variants of model (2) with *DISCORE* and *DRANK* as the dependent variables. However, *LEV* and *GLC* were not significant.

In models (3) and (4), the effects of boards that are dominated by a majority (greater than 50%) of independent directors (*MAJIND*), grey directors (*MAJGREY*) and executive directors (*MAJEXED*) on firm voluntary disclosure policies were examined. *MAJIND*, *MAJGREY*, and *MAJEXED* are dummy variables where “1” indicates a firm with boards dominated by independent, grey, or executive directors and “0” otherwise. The base group consists of firms with boards not dominated by any particular type of directors. Consistent with models 1 and 2, a positive coefficient is expected for *MAJIND*. As there is no explicit theory on how grey directors and executive directors are expected to affect board monitoring, the effects of *MAJGREY* and *MAJEXED* on firm voluntary-disclosure level are not predicted a priori. The *CONTROL* variables are omitted from the estimation of model 3 but included in model 4. *MAJIND* was positive and significant (p -value ≤ 0.05) in all variants of models 3 and 4 while *MAJGREY* and *MAJEXED* were not significant. The results for all other variables were similar to those of models 1 and 2.

The results of models 3 and 4 indicate that firms with boards dominated by a majority of independent directors have significantly higher levels of voluntary disclosure as compared to balanced boards. As discussed in Section 3.4, the Singapore code of corporate governance established in 2001 suggested that boards are effectively independent when at least one-third (33%) of the board consists of independent directors. To examine this particular definition of board independence, *MAJIND* was replaced with another dummy variable, *IND33%*²⁸, in models 3 and 4. In the re-estimations of models 3 and 4 (results not reported), *IND33%* was positive but insignificant in all of the models, suggesting that boards with 33% independent directors do not exhibit sufficient monitoring over managers’ disclosure tendencies as compared to boards that have a clear majority of independent directors.

The analyses suggest that boards with better monitoring ability, proxied by the proportion of independent directors, are associated with a higher level of voluntary disclosure, consistent with H1. In addition, firms with independent-director-dominated boards have significantly higher levels of voluntary disclosure, while firms with executive-director-dominated boards appear to have lower levels of voluntary disclosure, though the result is not statistically significant.

4.2. The endogeneity of board composition

Limited prior research has implied that the proportion of independent directors may be endogenously determined. Hermalin and Weisbach (1998) suggest that firms tend to have higher proportions of independent directors after a period of poor performance, leading to an endogenously determined board composition. Should the endogeneity adversely bias the OLS models used in this study, it would be difficult to interpret the association between board monitoring and voluntary disclosure. To examine this possibility, a specification test

²⁸ For the dummy variable *IND33%*, “1” indicates a firm with boards having at least one-third or 33% of independent directors and “0” otherwise.

Table 6
Results of cross-sectional OLS regressions for 2000^a

Independent variables ^b	Exp signs ^c	Model 1				Model 2				Model 3				Model 4			
		DScore	DRANK	ADScore		DScore	DRANK	ADScore		DScore	DRANK	ADScore		DScore	DRANK	ADScore	
Constant		12.397 (0.0172)	-0.108 (0.527)	-0.057 (0.754)		12.533 (0.023)	-0.039 (0.832)	-0.009 (0.965)		22.117 (0.000)	0.251 (0.046)	0.252 (0.061)		20.382 (0.000)	0.250 (0.093)	0.240 (0.142)	
BSize	+/-	1.240 (0.010)	0.044 (0.006)	0.041 (0.015)		0.532 (0.293)	0.023 (0.184)	0.027 (0.153)		0.813 (0.092)	0.027 (0.084)	0.029 (0.090)		0.219 (0.656)	0.011 (0.510)	0.019 (0.294)	
IND%	+	17.618 (0.004)	0.640 (0.002)	0.556 (0.010)		15.935 (0.008)	0.581 (0.005)	0.513 (0.018)		-	-	-		-	-	-	
MAJND	+	-	-	-		-	-	-		6.826 (0.008)	0.261 (0.003)	0.224 (0.013)		5.375 (0.030)	0.210 (0.014)	0.205 (0.025)	
MAJGREY	?	-	-	-		-	-	-		0.251 (0.930)	0.027 (0.772)	-0.008 (0.936)		-0.279 (0.917)	0.004 (0.961)	0.022 (0.820)	
MAJEXED	?	-	-	-		-	-	-		-2.723 (0.169)	-0.104 (0.112)	-0.117 (0.094)		-2.521 (0.194)	-0.098 (0.132)	-0.100 (0.158)	
DUALITY	?	1.584 (0.393)	0.052 (0.401)	0.098 (0.139)		1.806 (0.289)	0.061 (0.283)	0.113 (0.074)		1.751 (0.347)	0.059 (0.339)	0.102 (0.121)		1.953 (0.260)	0.067 (0.245)	0.115 (0.073)	
INSOWN	-	-	-	-		-4.178 (0.007)	-0.156 (0.003)	-0.179 (0.002)		-	-	-		-3.550 (0.018)	-0.131 (0.010)	-0.157 (0.006)	
LNMTAL	+	-	-	-		1.630 (0.011)	0.041 (0.045)	0.034 (0.098)		-	-	-		1.655 (0.011)	0.041 (0.044)	0.033 (0.104)	
ROA	+	-	-	-		0.225 (0.026)	0.007 (0.041)	0.005 (0.139)		-	-	-		0.236 (0.025)	0.007 (0.033)	0.005 (0.110)	
LEV	+	-	-	-		0.000 (0.495)	0.000 (0.385)	0.000 (0.226)		-	-	-		0.002 (0.403)	0.000 (0.491)	0.000 (0.174)	
GLC	+	-	-	-		1.255 (0.343)	0.001 (0.495)	0.057 (0.310)		-	-	-		1.974 (0.273)	0.032 (0.384)	0.097 (0.210)	
Adj R-Sq		0.075	0.090	0.073		0.229	0.228	0.165		0.084	0.116	0.098		0.216	0.225	0.171	
F-Stat p-value		0.013	0.006	0.014		0.000	0.000	0.001		0.018	0.004	0.009		0.000	0.000	0.002	

is used to investigate the extent of endogenous bias in model 2 (Hausman, 1978). Although the test requires the empirical modeling of the proportion of independent directors (*IND%*), there is not a well-developed theoretical model. Peasnell, Pope, and Young (2000) suggest that the proportion of independent board members is associated with board size (*BSIZE*), inside block ownership (*INSOWN*), firm size (*LNMVAL*), leverage (*LEV*), and past corporate performance (*ROA*). We add the 1999 proportion of independent directors (*IND99%*) as Denis and Sarin (1999) found that board composition changes slowly over time, and the lagged variable *IND99%* should exhibit explanatory power over *IND%*. For the Hausman test procedure, *IND%* is regressed upon these variables.

The endogenous model of independent director composition is specified as:

$$IND\%_i = \beta_0 + \beta_1 BSIZE_i + \beta_2 INSOWN_i + \beta_3 LNMVAL_i + \beta_4 LEV_i + \beta_5 ROA_i + \beta_6 IND99\%_i + \varepsilon_i. \quad (2)$$

The model (results not reported) exhibits significant explanatory power with an adjusted *R*-square of 55.3% (*F*-statistic *p*-value ≤ 0.000). *ROA* and *IND99%* are highly significant with *BSIZE* marginally significant at the 10% level of two-tailed significance. *INSOWN*, *LNMVAL*, and *LEV* are not significant. The OLS residuals obtained from Eq. (2) are included as an additional explanatory variable in the re-estimation of all variants of model 2 in Table 6. If the Eq. (2) residuals are non-zero and significant in the model 2 re-estimation, then there is the likely presence of an endogenous bias. The results (not reported) indicate that the residuals

Notes to Table 6:

^a All the regressions are based on the general model: $DISC_i = \alpha + \sum_{p=1}^j \beta_p BOARD_{ip} + \sum_{q=1}^k \gamma_q CONTROL_{iq} + \varepsilon_i$ where *DISC* represents cross-sectional voluntary-disclosure levels, *BOARD* represents key board composition variables, and *CONTROL* represents non-board related determinants of management voluntary disclosure.

^b *DISCORE* is the raw voluntary-disclosure levels index. *DRANK* is the ranked percentiles of each firm's index score. It is obtained by first ranking all firms in the sample on the basis of *DISCORE* and then converting the ranks into percentiles. *ADSCORE* is the industry-adjusted ranked percentiles of each firm's index score.

^c *BSIZE* is the board size as measured by the number of members on each firm's board. *IND%* is the proportion of independent directors on the board. *MAJIND* is an indicator variable where "1" represents firms with boards consisting of a majority (>50%) of independent directors and "0" otherwise. *MAJGREY* is an indicator variable where "1" represents firms with boards consisting of a majority of grey directors and "0" otherwise. *MAJEXED* is an indicator variable where "1" represents firms with boards consisting of a majority of executive directors and "0" otherwise. *DUALITY* is an indicator variable where "1" represents boards without a separation of the roles of CEO and board chairman and "0" otherwise. All board-related variables are obtained from the Corporate Governance and Intellectual Capital (CGIC) database maintained by the Singapore Management University. *INSOWN* is a dummy variable indicating the presence of an inside block owner. An inside block owner is defined as any person who is in management, on the board of directors, or is a corporation whose shareholdings are substantially (>5%) held by management of the firm, and is classified as one of the top five substantial shareholders in the FY2000 annual reports. *LNMVAL* is the logarithmic transformation of the firm's market value of common shares as at the end of their fiscal year 2000. *ROA* is the 3-year average return-on-total assets of the firm prior to their 2000 fiscal year. *LEV* is the long-term debt-to-equity ratio at the end of fiscal year 2000. *GLC* is a dummy variable indicating the presence of government ownership. A firm is classified as having government ownership if the Singapore government's corporate investment arm, Temasek Holdings Pte Ltd, is present as a substantial (>5%) shareholder.

^d The coefficient estimates are presented with their *p*-values in parentheses. One-tailed *p*-values are reported for coefficients with predicted directions while two-tailed *p*-values are reported for coefficients without a priori predictions.

Table 7

Descriptive statistics for disclosure and board-composition characteristics in 1998^a

Variable	<i>n</i>	Mean	SD	Min	25%	50%	75%	Max	No. of firms (% of sample)
<i>DSCORE</i>	104	24.33	7.52	7.00	19.75	23.50	29.00	52.00	
<i>ADSCORE</i>	104	0.47	0.31	0.00	0.20	0.47	0.74	1.00	
Board size (<i>Bsize</i>)	104	7.796	2.290	4.000	6.000	8.000	9.000	17.000	
Number of independent directors (<i>IND</i>)	104	2.767	1.131	0.000	2.000	2.000	3.000	7.000	
Number of "grey" directors (<i>GREY</i>)	104	2.068	2.406	0.000	0.000	1.000	3.000	14.000	
Number of executive directors (<i>EXED</i>)	104	2.961	1.754	0.000	2.000	3.000	4.000	7.000	
Proportion of independent directors (<i>IND%</i>)	104	0.370	0.146	0.000	0.261	0.333	0.429	0.800	
Proportion of "grey" directors (<i>GREY%</i>)	104	0.239	0.223	0.000	0.000	0.200	0.400	0.833	
Proportion of executive directors (<i>EXED%</i>)	104	0.392	0.208	0.000	0.200	0.400	0.563	0.778	
Number of firms with a majority of Independent directors (<i>MAJIND</i>)	104								12 (0.115)
Number of firms with >33% of Independent directors (<i>IND33%</i>)	104								63 (0.605)
Number of firms with a majority of "Grey" directors (<i>MAJGREY</i>)	104								12 (0.115)
Number of firms with a majority of Executive directors (<i>MAJEXED</i>)	104								30 (0.288)
Number of firms not dominated by any group of directors	104								50 (0.481)
Number of firms where the same person is both the CEO and Chairman (<i>DUALITY</i>)	104								31 (0.295)

^a Data for the board-composition characteristics were obtained from the Corporate Governance and Intellectual Capital (CGIC) database maintained by the Singapore Management University. *DSCORE* is the self-constructed firm-disclosure index based on a corporate voluntary-disclosure checklist, designed to capture non-mandated firm disclosures. The checklist consists of three broad categories: business data (40 items), management's discussion and analysis (13 items) and forward-looking information (19 items). The checklist was administered on the sample firms' FY 1998 annual reports. *ADSCORE* is the industry-adjusted voluntary-disclosure index, where the firms are first ranked within their own industry classifications based on the raw disclosure score (*DSCORE*). The ranked scores are then subsequently converted into percentiles via the formula: $(\text{Rank in industry} - 1) / (\text{Number of firms in industry} - 1)$.

from Eq. (2) are not significant in any of the models, suggesting that the original results are not affected by an endogenous bias. Following Peasnell, Pope, and Young (2000), the *DSCORE*, *DRANK*, and *ADSCORE* variants of model 2 were also re-estimated via two-stage least

squares (2SLS) using the predicted *IND%* from Eq. (2) as an instrument variable for *IND%* in the models. The results (not reported) of the 2SLS estimations are similar to the original OLS results in Table 6. These results are limited to the extent that our instrumental variables meet the assumptions of being truly exogenous to the dependent variable (Larcker & Rusticus, 2005).

4.3. Analysis of the effect of the regulatory regime on the board monitoring of disclosure

As discussed in Section 3, the transition of the Singapore regulatory regime from a predominantly merit-based philosophy to a predominantly disclosure-based philosophy was expected to be substantially in process by the year 2000. As the Corporate Finance Committee's final recommendations were made towards the end of 1998, board composition and voluntary-disclosure tendencies prior to the year 1999 would be based on a predominantly merit-based philosophy, reflecting the current regulatory regime. Thus, 1998 board composition and voluntary-disclosure level is used to proxy for the outcomes of the predominantly merit-based regulatory regime.

Table 7 presents the descriptive statistics of the disclosure-level index²⁹, *DScore* and *ADScore* as well as the board variables for the same sample of firms in 1998. Comparing the *DScore* measures between 1998 and 2000, the sample appears to have increased voluntary disclosure levels from 1998 to 2000. The mean *DScore* in 2000, 28.91 (from Table 2), is significantly higher when compared to 24.33 in 1998, with both the paired sample *t*-test and Wilcoxon sign-test significant (p -value ≤ 0.05). With respect to board-composition characteristics, board composition did not change significantly from 1998 to 2000, with the average proportion of about 37% for both years, supporting Denis and Sarin's (1999) contention that board composition evolves slowly over time.

To examine H3, cross-sectional regressions pertaining to model 2 in Table 6 are estimated for the same sample of firms in 1998, when a predominantly merit-based regulatory philosophy was prevalent. A pooled sample regression (1998 and 2000) was also estimated with an additional variable, *YEAR* ("1" indicating 2000 and "0" indicating 1998), to control for the effect of the different years.³⁰ The pooled sample regression model is:

$$DISC_i = \beta_0 + \beta_1 BSIZE_i + \beta_2 IND\%_i + \beta_3 DUALITY_i + \beta_4 INSOWN_i + \beta_5 LNMVAL_i + \beta_6 ROA_i + \beta_7 LEV_i + \beta_8 GLC_i + \beta_9 YEAR_i + \varepsilon_i \quad (3)$$

where *DISC* represents the voluntary disclosure level of firms proxied by *DScore*, *DRANK*, and *ADScore*.

Table 8 presents the regression results for 1998, 2000 and the pooled sample. In 1998, none of the independent variables significantly explain the cross-sectional variation in firms' voluntary-disclosure tendencies. Only *LNMVAL* was significant at the 10% level of

²⁹ The disclosure-level index, *DScore*, is obtained by applying the same voluntary-disclosure checklist described in Section 3.2 to the same sample of firms' fiscal year 1998 annual reports. The index was validated via the same procedure in Section 3.2.1.

³⁰ The variable *YEAR* can also be interpreted to control for the disclosure tendencies of firms across a predominantly merit-based regulatory regime (1998) and a predominantly disclosure-based regulatory regime (2000).

Table 8
Results of cross-sectional OLS regressions for 1998 and 2000^a

Independent variables ^c	Exp signs ^d	1998			2000			Pooled (1998 and 2000)		
		DSCORE	DRANK	ADSCORE	DSCORE	DRANK	ADSCORE	DSCORE	DRANK	ADSCORE
Constant		16.506 (0.000)	0.200 (0.254)	0.129 (0.493)	12.533 (0.023)	-0.039 (0.832)	-0.009 (0.965)	13.914 (0.000)	0.119 (0.334)	0.086 (0.521)
BSIZE	+/-	0.292 (0.462)	0.010 (0.514)	0.013 (0.451)	0.532 (0.293)	0.023 (0.184)	0.027 (0.153)	0.381 (0.223)	0.016 (0.169)	0.020 (0.105)
IND%	+	4.670 (0.214)	0.252 (0.143)	0.288 (0.126)	15.935 (0.008)	0.581 (0.005)	0.513 (0.018)	8.627 (0.023)	0.369 (0.009)	0.381 (0.013)
DUALITY	?	0.542 (0.748)	-0.002 (0.975)	-0.003 (0.968)	1.806 (0.289)	0.061 (0.283)	0.113 (0.074)	1.282 (0.283)	0.035 (0.422)	0.060 (0.200)
INSOWN	-	-1.390 (0.189)	-0.097 (0.062)	-0.102 (0.065)	-4.178 (0.007)	-0.156 (0.003)	-0.179 (0.002)	-2.923 (0.005)	-0.130 (0.001)	-0.153 (0.001)
LNMVAL	+	0.955 (0.058)	0.038 (0.060)	0.047 (0.036)	1.630 (0.011)	0.041 (0.045)	0.034 (0.098)	1.298 (0.005)	0.040 (0.008)	0.039 (0.015)
ROA	+	0.042 (0.284)	0.001 (0.425)	0.003 (0.159)	0.225 (0.026)	0.007 (0.041)	0.005 (0.139)	0.040 (0.265)	0.002 (0.239)	0.001 (0.367)
LEV	+	-0.001 (0.189)	0.000 (0.277)	0.000 (0.230)	0.000 (0.495)	0.000 (0.385)	0.000 (0.226)	-0.001 (0.268)	0.000 (0.276)	0.000 (0.308)
GLC	+	5.807 (0.020)	0.105 (0.172)	0.032 (0.395)	1.255 (0.343)	0.001 (0.495)	0.057 (0.310)	2.544 (0.112)	0.059 (0.217)	0.006 (0.469)
YEAR	?	-	-	-	-	-	-	3.459 (0.002)	0.034 (0.399)	0.002 (0.481)
Adj R-Sq		0.141	0.097	0.079	0.229	0.228	0.165	0.002	0.173	0.000
F-Stat p-value		0.005	0.025	0.047	0.000	0.000	0.001	0.000	0.000	0.000

one-tailed significance across all specifications of voluntary disclosure. *INSOWN* was moderately significant at the 10% level for the *DRANK* and *ADSCORE* models, while *GLC* was significant (p -value ≤ 0.05) in the *DScore* model. *IND%* was not significant in any of the models, suggesting that the expected relationships between disclosure and its determinants were weaker in 1998 due to the prevalent philosophy of merit-based regulation with less emphasis on voluntary disclosure. In contrast, *IND%* was highly significant (p -value ≤ 0.05) in the 2000 regressions. The coefficient estimate of *IND%* in the 2000 models is about three times larger than that of the 1998 models with *DScore* as the dependent variable and about two times larger in the *DRANK* and *ADSCORE* models. This comparison provides limited evidence that boards with a higher degree of independence are associated with higher levels of voluntary disclosure from firms in 2000 but not in 1998, implying that the monitoring role of the board is influenced by the prevailing external regulatory regime.

With respect to the pooled sample regressions, the results are largely similar to those of the 2000 regressions except that *ROA* was insignificant in all models. The highly significant and positive coefficient for the *YEAR* variable (p -value ≤ 0.05) in the *DScore* model was consistent with the earlier finding that on average, firms in 2000 were disclosing more than firms in 1998. However, the insignificance of the *YEAR* variable in the *DRANK* and *ADSCORE* models indicates that while firms as a group disclosed more voluntary information in 2000 as compared to 1998, the voluntary-disclosure levels relative to other firms in the sample (*DRANK*) and to other firms in the same industry (*ADSCORE*) did not

Notes to Table 8:

^a The year 1998 proxies for a predominantly merit-based regulatory regime while the year 2000 proxies for a predominantly disclosure-based regulatory regime. As the research objective is to examine if the role of the board in monitoring management voluntary-disclosure policies changes across regimes, the cross-sectional regression models are based on model 2 in Table 6 where the proportion of independent directors (*IND%*) is a continuous variable. The model is as follows: $DISC_i = \beta_0 + \beta_1 BSIZE_i + \beta_2 IND\%_i + \beta_3 DUALITY_i + \beta_4 INSOWN_i + \beta_5 LNMVAL_i + \beta_6 ROA_i + \beta_7 LEV_i + \beta_8 GLC_i + \beta_9 YEAR_i + \varepsilon_i$ where *DISC* represents the cross-sectional voluntary disclosure levels.

^b *DScore* is the raw voluntary disclosure level index. *DRANK* is the ranked percentiles of each firm's index score. It is obtained by first ranking all firms in the sample on the basis of *DScore* and then converting the ranks into percentiles. *ADScore* is the industry-adjusted ranked percentiles of each firm's index score.

^c *BSize* is the board size as measured by the number of members on each firm's board. *IND%* is the proportion of independent directors on the board. *DUALITY* is an indicator variable where "1" represents boards without a separation of the roles of CEO and board chairman and "0" otherwise. All board-related variables are obtained from the Corporate Governance and Intellectual Capital (CGIC) database maintained by the Singapore Management University. *INSOWN* is a dummy variable indicating the presence of an inside block owner. An inside block owner is defined as any person who is in management, on the board of directors, or is a corporation whose shareholdings are substantially (>5%) held by management of the firm, and is classified as one of the top five substantial shareholders in the FY2000 annual reports. *LNMVAL* is the logarithmic transformation of the firm's market value of common shares at the end of their fiscal year 2000. *ROA* is the 3-year average return on total assets of the firm prior to their 2000 fiscal year. *LEV* is the long-term debt to equity ratio at the end of fiscal year 2000. *GLC* is a dummy variable indicating the presence of government ownership. A firm is classified as having government ownership if the Singapore government's corporate investment arm, Temasek Holdings Pte Ltd is present as a substantial (>5%) shareholder.

^d The coefficient estimates are presented with their p -values in parentheses. One-tailed p -values are reported for coefficients with predicted directions while two-tailed p -values are reported for coefficients without a priori predictions.

appear to change significantly over time. In other words, all firms were raising their voluntary-disclosure levels from 1998 to 2000. To further examine the earlier result that boards exhibit stronger monitoring over voluntary-disclosure tendencies in 2000 than in 1998, *IND%* was interacted with *YEAR* in the pooled regression sample and all models re-estimated. If the marginal effect of the board on firm voluntary disclosure is stronger in 2000, a positive and significant coefficient will be obtained on the interaction term. In the re-estimation (not reported) the interaction term was positive but insignificant in the models. Upon examination, the Variance Inflation Factor (VIF) of the interaction term approaches ten. In addition, the Pearson Correlation (Spearman rho) between the interaction variable and *YEAR* was 0.886 (0.912), indicating a high degree of correlation. While the differential effect of *IND%* on voluntary disclosure between 1998 and 2000 is not statistically significant in this analysis, this result may arise from multicollinearity.³¹

5. Conclusion

We examined the effects of the role of the board of directors, board size, and duality in monitoring and influencing the level of voluntary disclosure made by management over two different regulatory regimes. Noteworthy contributions of this study to the current body of governance and disclosure research are that it (1) provides initial empirical evidence of a positive association between board independence and a direct measure of voluntary disclosure that can be generalized to the overall market, (2) documents that an external governance mechanism (regulatory regime) can influence the firm's internal-governance mechanism (board of directors) in their monitoring capacity, and (3) demonstrates that board size and CEO duality are not associated with the level of voluntary disclosure.

We confirm a significant and positive association between the proportion of independent non-executive directors and a direct measure of voluntary disclosure. The results also show that firms with boards dominated by a majority of independent directors have significantly higher levels of voluntary disclosure as compared to firms with boards without a majority of independent directors. Notably, these results do not hold when the CCDG-suggested level of director independence (33%) is examined. We also provide evidence that boards dominated by a majority of executive directors are associated with lower levels of voluntary disclosure, although the result is not statistically significant. These results are of interest to regulators as they demonstrate that the suggested regulatory level of board independence does not appear to be high enough to provide the desired level of monitoring, and that CEO duality does not necessarily need to be abolished.

An important finding is the result obtained from examining the effect of the external regulatory regime on the board's monitoring of firm disclosure. The results show that the strength of association between board independence and voluntary disclosure under a disclosure-based model of regulation is about two to three times stronger than under a merit-based model of regulation, suggesting that the board's monitoring of firm disclosure is more active under a disclosure-based regime. These results provide evidence that firms

³¹ To reduce the degree of correlation between the interaction term and *YEAR*, *IND%* was mean-centered and interacted with *YEAR*. However, the VIF was still too high, and the correlation between the centered interaction term and *YEAR* was about 0.75.

may voluntarily disclose more information in reaction to a regulatory regime change, and imply that when external regulatory bodies emphasize firm governance, boards accordingly align their monitoring objectives to those of the external regulatory body.

As usual, there are some limitations to the research. Although we assume that the regulatory change is an exogenous event, the extent to which the regulator promotes change through GLCs could create an endogenous bias. However, there are only 11 GLCs in the sample and the variable has been insignificant in all but one of the estimated models.

While this study was able to examine the relation between board monitoring and voluntary disclosure across two different external-governance philosophies, it is still based on a single geographic market. Although our results are generalizable to the Singapore market, these results may not obtain in other markets. Additionally, our analysis is dependent upon the ability of the disclosure index to differentiate the level of disclosure. Although we have demonstrated the internal and external validity of the index, measurement error may still exist.

The use of a self-constructed voluntary-disclosure index is sufficient in capturing cross-sectional variation in firm disclosure. However, data collection is tedious, resulting in modest samples. For example, the data collection task to obtain a cross-sectional sample for a similar representation of U.S. companies (23% or 3700 firms) that could be generalized to the U.S. market would be, at best, onerous. While an alternative is to use professional analyst's assessments of corporate disclosure, these measures are likely to bias the sample towards firms that are larger and have higher levels of disclosure. Absent a straightforward proxy for voluntary disclosure, obtaining a large unbiased sample that can be generalized remains a significant challenge to disclosure-based studies.

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Discussion

Board composition, regulatory regime, and voluntary disclosure

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1. Introduction

Using a sample of listed firms in Singapore, the study by Cheng and Courtenay (2006-this issue) shows that firms with higher proportion of independent directors or with independent directors being the majority on the board have higher levels of voluntary disclosure. On the other hand, board size and CEO duality are not associated with voluntary disclosure.

Moreover, the study also shows that Singapore's switch from a "disclosure-based" regulatory regime to a "merit-based" regime enhances the strength of the association between the proportion of independent directors and the level of voluntary disclosure. The authors take this association as evidence that external regulatory environment interacts with internal governance mechanisms to influence the corporate disclosure policy.

2. Contributions

I think the paper makes important contributions to the accounting literature of disclosure in at least two aspects. First, independent directors form an important ingredient of corporate governance mechanism. Whether this mechanism is just a token or can be effective is subject to debate. In the United States, non-executive directors are known to play a larger role in monitoring managers than do inside board members (e.g., Weisbach, 1988). However, legal studies such as that by Roe (2002) point out that corporate governance depends not only on laws and regulations, but also on the structure and operations of other institutions such as laws firms, the accounting profession, investment banks, enforcement mechanisms, and the courts. Thus, whether independent directors make

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any difference in countries with varying institutional environments becomes an important issue. Since disclosure is an important accounting-related function, the association between independent directors and disclosure in different countries is a timely research question in accounting. Unlike previous studies, this one does not report mixed evidence regarding the impact of board composition on management's disclosure tendencies.

The second contribution of the paper is its adoption of a single-country setting (i.e., Singapore) to examine the relation between board structure and voluntary disclosure. The country-specific setting allows the authors to derive a finer measure of corporate disclosure, rather than the crude country-level measures such as the index officed by the Center for International Financial Analysis and Research (CIFAR) which is used in many cross-country studies. In addition, the country-specific setting also allows the authors to include the change in regulatory regime in their research design. Namely, in 1999, Singaporean regulators changed the financial reporting framework from an authority-based framework to a disclosure- or market-based regulatory framework similar to systems in the U.S. or the U.K. Under the new framework, investors and shareholders determine the level of approval over firm transactions and activities, and enhanced disclosure becomes a necessity for the market to monitor company affairs. Whether this change in the regulatory framework affects the association between independent directors and disclosure is an interesting issue that is difficult to conduct using a cross-country setting.

3. Issues in methodology

3.1. Common determinants of board structure and disclosure

The most important methodological issue that requires some thought is understanding the common determinants of board structure and disclosure. These common determinants might contribute to the correlation between independent directors and disclosure. Two possible common determinants come to mind: external financing needs and influence of overseas investors.

External financing needs are likely to be a common determinant because, previous studies find that firms with greater external financing needs have better corporate governance (e.g., Durnev & Kim, 2005).¹ Thus, those firms are also likely to seek a more independent-board structure. On the other hand, other studies also show that firms in industries with greater external financing needs have higher voluntary disclosure levels (e.g., Francis, Khurama, & Pereira, 2003). Thus, it is likely that the correlation between board independence and disclosure could be due to the needs for external financing.

The second possible common determinant is the interaction with overseas markets. Khanna, Palepu, and Srinivasan (2004) find a positive association between the Standard and Poor's disclosure scores of non-U.S. companies and interactions with overseas markets, especially with the U.S. The interactions are measured by cross-listing in the U.S., investment flows from and to the U.S., exports to U.S., etc. It is likely that the international exchanges and flow of information will also lead to more independence in the corporate

¹ The reason is that good corporate governance reduces cost of equity capital.

boards. Thus, the market interaction variables could determine both board independence and disclosure, resulting in another common determinant.

One possible approach to resolving the above noted confounds is to test the change in disclosure as a function of change in the portion of independent directors. However, the feasibility of this approach depends on both variables having enough variation. Another solution is to include measures of market interactions (e.g., cross-listing in the U.S.) as control variables.

3.2. *The effect of regulatory regime*

The study shows (Table 8) that the coefficient on the percentage of independent directors is significant in 2000 but insignificant in 1998. A formal test of the different effect in the 2 years can be performed by using a pooled sample of both years in the regression, with YEAR*IND% (both variables are defined in Table 8) included as an additional independent variable. The coefficient on this variable will highlight the incremental effect of IND% under the disclosure-based regime.

4. Conclusions

Overall, I think the study makes a contribution to the international research of corporate disclosure. Being a country-specific study, there is a usual caveat about the generalizability of this study's findings to other countries with different market environments. That is, whether the results are specific to Singapore is uncertain. Thus, testing the similar issues using data from other countries is a useful topic for future research.

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Discussion

Response to discussion of “board composition, regulatory regime and voluntary disclosure”

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1. Introduction

We appreciate the discussion provided by Professor Chen, and thank him for his insight into the problematical area of the measurement of voluntary disclosure and how it may be linked to the monitoring capacities of the board of directors.

2. Issues in methodology

2.1. Common determinants of board structure and disclosure

The discussant suggests that there may be other influences on the level of voluntary disclosure that have not been considered in the empirical model estimation; in particular, he refers to external financing needs and the influence of overseas investors through cross-listing on other exchanges, especially the USA exchanges. Additionally, it is intimated that exports to capital markets such as those of the USA may influence the level of board independence and thus, voluntary disclosure.

We address these methodological concerns as follows: (1) With respect to the positive relation between external financing and voluntary disclosure, we were careful to exclude from our sample all firms that were listed during the period 1996–2000, as shown in Table 1, Panel A. Additionally, there were no significant secondary issues during this period of time, which was due primarily to the present and then lingering effects of the Asian financial crisis. We did not mention this point regarding significant secondary offerings and regret that lack of disclosure.

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(2) With respect to the positive disclosure effects of cross-listing of firms on overseas markets, our sample has few instances of such cross-listings. While the sample is a representative cross-section of Singaporean companies, few Singaporean companies are listed on exchanges in the USA, and none in the sample have a USA cross-listing. The only significant cross-listing (1 firm) is on the Australian Exchange.

We feel that these sample-specific characteristics allow us to infer that the level of voluntary disclosure in our sample firms is positively and significantly associated with our board monitoring proxy.

2.2. The effect of regulatory regime

Professor Chen has proposed that we use the interaction term YEAR*IND% as a separate independent variable in the pooled regression of 1998 and 2000 data to highlight the differential effect of the regulatory regime on voluntary disclosure. We believe that introducing the interaction term into the modeling in such a manner would not facilitate interpretation of the results. It is known that interaction terms may introduce multicollinearity, as was found when we estimated a model with the interaction term YEAR*IND% using the pooled 1998 and 2000 data. We note that the interaction term was positive but insignificant in the models,” and this result may arise from multicollinearity.”

3. Conclusion

We accept the caveats of the study provided by Professor Chen and we appreciate his acknowledgment of the contribution that our paper makes.



Investigating the effect of board independence on performance across different strategies[☆]

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Abstract

This study investigates the effect of board independence on performance across different strategies. Using moderated regression analyses, the results confirm our hypothesis that board independence has a significantly more positive effect on performance for firms pursuing a strategy of cost efficiency than for those pursuing a strategy of innovation. The results of this study indicate that consideration of firms' competitive strategy can provide a better understanding of the relationship between board independence and firm performance.

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1. Introduction

Corporate governance, a system by which firms are directed and controlled in order to ensure their continuity in business, is the responsibility of senior management and the board of directors (The UK Financial Reporting Council & The London Stock Exchange, 1991).

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² Both authors contributed equally to this study's development. The sequence of names was determined in random order. The data are available from public sources. A list of sample firms is available from the corresponding author upon request. This paper has benefited from comments and suggestions from Sue Haka (associate editor), the two anonymous reviewers of this journal and from participants at the Asian Academic Accounting Association Fourth Annual Conference, Bangkok, Thailand.

Accordingly, the various reforms³ that have been introduced in recent years to promote sound corporate governance include: requiring a majority of board members to be independent; tightening the standards for determining a member's independence; creating committees composed predominantly of outside directors with professional qualifications; reducing the number of board members in order to facilitate more effective decision making; minimizing management's control over the appointment of board and committee members; and encouraging the review of performance of the board and of each board member.

Despite the widely-held belief that sound corporate governance is the foundation of a firm's long-term success, empirical studies examining the relationship between corporate governance and performance have generated inconsistent findings. Some studies provide evidence that corporate governance has a positive effect on performance (e.g., Brickley, Coles, & Terry, 1994; Brickley & James, 1987; Byrd & Hickman, 1992; Chung, Wright, & Kedia, 2003; Hossain, Cahan, & Adams, 2000; Lee, Rosenstein, Rangan, & Davidson, 1992; Rosenstein & Wyatt, 1990; Weisbach, 1988). However, other studies, report a negative association between corporate governance and firm performance (e.g., Bathala & Rao, 1995; Hutchinson, 2002) or find that corporate governance does not have any impact on performance (e.g., Park & Shin, 2003; Prevost, Rao, & Hossain, 2002; Singh & Davidson, 2003; Young, 2003).

There are several possible explanations for these inconsistencies. First, Young (2003) argues that methodological differences may at least in part explain them, given that some studies use publicly available data to measure corporate governance variables while others use survey data. Second, it is possible that the choice of performance variables might also play a role in explaining the mixed results. Some studies use accounting-based performance measures such as Return on Assets, Return on Equity, or Asset Turnover, (e.g., Hutchinson & Gul, 2004; Park & Shin, 2003; Singh & Davidson, 2003) while others use market-based performance measures such as Stock Return or Market Value of Equities (e.g., Baysinger & Butler, 1985; Brickley et al., 1994; Cotter, Shivdasani, & Zenner, 1997; McWilliams & Sen, 1997).

Third, a recent study by Hutchinson and Gul (2004) provides evidence that good corporate governance moderates the negative relationship between a firm's opportunity for growth and its performance. Insights gleaned from this research suggest that the impact of corporate governance variables on firms' performance should be evaluated in relation to their contextual variables. It is, therefore, possible that addressing the role of contextual variables could provide an opportunity to expand our understanding of the relationship between corporate governance and firm performance.

The purpose of this study is to investigate the effect of board independence—one of the most widely used proxies for good governance—on performance across different strategies

³ The Sarbanes-Oxley Act of 2002, Toronto Stock Exchange Corporate Governance Guidelines of 1996, Organization for Economic Co-operation and Development (OECD) Principles of Corporate Governance (1999), Nasdaq Corporate Governance Rule Proposal of 2003, are just a few examples of numerous codes of best practices proposed and adopted by national stock exchanges, professional organizations, legal practitioners, and business leaders promoting sound corporate governance.

using a contingency perspective. Employing insights gained from strategy and accounting literature, we predict that board independence affects the relationship between competitive strategy and performance more positively for firms pursuing a strategy of cost efficiency than for those pursuing a strategy of innovation.

Given that firms that pursue a strategy of cost efficiency emphasize tight cost controls, they will benefit more from board independence than will firms pursuing a strategy of innovation. Boards of directors which are more independent from management tend to perform management-monitoring activities more effectively. This will in turn minimize the chance of getting managers engaged in opportunistic behavior and discipline them to run the firm more efficiently. However, it might also limit managers' ability to pursue the creative and innovative courses of actions that are crucial to firms whose survival depends on innovation. Furthermore, the tendency of outside directors to use outcome control might further increase efficiency but at the same time cause management to be reluctant to invest in risky but strategically important activities—activities that increase the firms' ability to be innovative.

Overall, the results are consistent with our predictions. We found that the effect of board independence on performance is significantly more positive for firms pursuing a strategy of cost efficiency than for firms pursuing a strategy of innovation. These findings suggest that the relationship between board independence and performance can be better understood by taking into consideration the firms' business strategy.

The remainder of the paper is organized as follows. Section 2 discusses related literature and the hypothesis. Section 3 presents the research method, and Section 4 analyzes the data and results. Finally, Section 5 comments on the main results and the limitations of the research, and recommends a direction for future research in this area.

2. Related literature and hypothesis

Agency theory has been the most dominant approach to investigating the relationship between board independence and performance. This theory suggests that asymmetries of information and objectives between the principal (shareholders) and the agent (management) impose costs on the principal when an agent with discretionary authority takes actions in his/her own interest rather than the principal's best interest. According to the theory, firms might minimize agency costs by establishing appropriate monitoring systems and using boards of directors to effectively supervise managers (Byrd & Hickman, 1992; Fama & Jensen, 1983). Fama and Jensen (1983) argue that manager-monitoring activities of the board will be more effective when they are dominated by independent-outside directors.

Wagner, Stimpert, and Fubana (1999) report that the most significant trend in corporate board governance in the U.S.A. over the last two decades has been an increase in the proportion of outside directors. This trend of including more outsiders on the board has aimed at making boards more independent from management. Westphal (1999) proposes that managers are under considerable pressure to conform to the wishes of corporate insiders. This author argues that for corporations to provide effective supervision of managers, boards of directors should consist mostly of outside directors. Hossain et al. (2000) assert that the value of outside directors is related to their ability to judge firm

performance objectively—inside directors may lack this quality, which limits their effectiveness as corporate monitors.

While the relationship between board independence and firm performance has long been the focus of research, empirical findings regarding the effects of the former on the latter have been inconclusive. For example, Chung et al. (2003) examine whether board independence improves firm performance through capital and R&D expenditures. Using data from Compustat Industrial File and Lexis/Nexis Services, they find that capital and R&D expenditures do have a positive impact on firm performance, but only for firms which have a high proportion of outside directors. They conclude that board independence affects performance positively through the ability of outside directors to provide effective management-monitor activities. Using data from New Zealand, Hossain et al. (2000) also find a positive relationship between higher levels of board independence and firm performance. In contrast, Bathala and Rao (1995) report a negative correlation between board independence and performance. Other studies by Prevost et al. (2002) and Vafeas and Theodorou (1998) do not find a statistically significant relationship between the two.

The lack of empirical support for the predicted relationship between board independence and performance calls the applicability of the existing approach to this phenomenon into question. Most previous studies in this area employ a universal approach by investigating the direct effect of corporate governance on performance as independent from other variables. However, Hutchinson and Gul (2004) argue that the effects of corporate governance on performance should be jointly investigated with firms' contextual variables. Following this suggestion, we adopt a contingency approach in evaluating the relationship between board independence and performance across firms' competitive strategies.

Porter (1985) argues that a firm must have a clear competitive strategy in order to compete effectively and gain sustainable competitive advantage. He proposes that a firm can choose to become the provider of the lowest-price products in an industry (cost-efficiency strategy) or to become the provider of unique and innovative products (innovation strategy). Firms that adopt a strategy of cost efficiency focus their efforts on controlling costs by emphasizing the aggressive construction of efficient scale facilities; the vigorous pursuit of cost reduction from experience, tight cost and overhead control; the avoidance of marginal customer accounts; and cost minimization in areas like research and development, service, sales personnel, and advertising (Porter, 1985).

Westphal (1999) proposes that outsider-dominated boards will effectively limit the chance of managers' engaging in opportunistic behavior by imposing restrictions to ensure that they do not act in their own self-interest if that is inconsistent with shareholders' interest. These restrictions may also discipline managers to run firms more efficiently. More outside directors will put the boards in a better position to challenge management and negotiate with it and, in extreme cases, enable it to terminate managers' employment (Dallas, 2001). In addition, outside directors tend to rely on outcome measures or financial controls in evaluating management due to their lack of specific, insider information about the firm (Baysinger & Hoskisson, 1990; Zahra & Pearce, 1998). Govindarajan and Fisher (1990) argue that outcome control is most appropriately used by firms that employ cost-efficiency strategies. It is argued that these firms tend to produce standard products through the performance of routine and highly programmable tasks and that their knowledge of

means and ends is relatively high. By using outcome control, these firms could increase efficiency by eliminating the need to incur additional expenses to enhance the transparency of managers' behavior.

By contrast, firms that adopt a strategy of innovation tend to select one or more attributes that many buyers in an industry perceive as important and uniquely position themselves to meet the demand for these attributes by producing innovative products (Porter, 1985). To support this strategy, it is essential that firms invest heavily in research and development activities (Mia & Clarke, 1999) and give their managers the freedom to pursue creative and innovative courses of action in order to thrive and succeed. Therefore, manager-monitoring activities of boards might work against achieving these firms' performance goals because the restrictions imposed might limit managers' ability to make decisions that are crucial to the firms' long term success (Robinson & McDougall, 2001; Simerly & Li, 2000). Moreover, because they lack the specific inside knowledge about the firm, outside directors tend to rely on outcome control in evaluating management. This limits the board's ability to discriminate between financial outcomes that are the result of bad decision making on the part of management and financial outcomes that are due to factors beyond management's control. Researchers have argued that the use of outcome control tends to shift the responsibility for poor results arising from factors beyond managements' control from shareholders to management and thereby cause management to adopt more risk-averse strategies (e.g., Baysinger & Hoskisson, 1990; Pearce & Zahra, 1992; Zahra, 1996). As a result, managers become reluctant to pursue risky projects such as investments in long-term projects and research and development activities, both of which are crucial to firms pursuing a strategy of innovation.

As indicated, the impact of board independence on performance differs across different strategies. The increased level of board independence will lead to more effective management supervisions by the board. Monitoring will cause managers to run their firms more efficiently, and therefore, will be beneficial for cost-efficiency firms. For innovative firms, however, monitoring by the board might impede managers' ability to be creative and innovative which are crucial for the firms to thrive and succeed. As such, board independence will have a more pronounced positive effect on firm performance for cost-efficiency firms than for innovative firms. Specifically, our research will test the following hypothesis:

The impact of board independence on performance will vary across different strategies such that the impact will be more positive for firms pursuing a strategy of cost efficiency than for those pursuing a strategy of innovation.

3. Research method

We use a Moderated Regression Analysis (MRA) to test the hypothesis. Gerdin and Greve (2004) assert that the MRA is a commonly used statistical technique for studies predicting that the impact of the moderator variable on the dependent variables fluctuates across different levels of independent variables. In a similar vein, Hartmann and Moers (1999) argue that MRA is the appropriate statistical technique by which to test hypotheses involving interaction terms because it is "a specific application of multiple regression

analysis, in which the regression equation contains an interaction term” (Hartmann & Moers, 1999, p. 293). Therefore, we use the following MRA model to test the hypothesis:

$$\text{Perform}_i = \gamma_0 + \gamma_1 \text{IND}_i + \gamma_2 \text{STRA}_i + \gamma_3 \text{STRA}_i * \text{IND}_i + \gamma_4 \text{LOGTA}_i + \gamma_5 \text{LEV}_i + \gamma_6 \text{OWN5\%}_i + \gamma_7 \text{BSIZE}_i + \gamma_8 \text{IOS}_i + \gamma_9 \text{CEO}_i + \varepsilon_i \quad (1)$$

Where,

Perform_i performance of firm i determined by ROE and ROI

IND_i the ratio of external members to total members on the board of directors of firm i

STRA_i an indicator equal to 1 for firms pursuing a strategy of innovation and equal to 0 for firms pursuing a strategy of cost efficiency

LOGTA_i log of total assets of firm i

LEV_i debt to equity ratio of firm i

OWN5\%_i

the percentage of stock owned by 5% or more shareholders of firm i

BSIZE_i the number of directors on the board of firm i

IOS_i the ratio of gross property, plant and equipment to the market value of firm i

CEO_i an indicator equal to 1 if the CEO is also the chair of the board, otherwise 0.

We test our hypothesis with the estimated coefficients on IND, and STRA*IND. The coefficient on IND represents the linear relationship between the level of board independence and performance. We predict that this coefficient will be positive. The coefficient on STRA*IND represents the effects of increasing the level of board independence on the overall relationship between STRA and performance. We predict that this coefficient will be negative.⁴ The hypothesis developed in this study will be confirmed if the estimated coefficient on STRA*IND (γ_3) is significantly negative *and* both the coefficients on IND (γ_1), and the sum of the coefficients on IND and STRA*IND are positive.

3.1. Sample selection

The sample consists of firms in the manufacturing industry (SIC 2000 and SIC 3000) which were listed in the Compustat S&P 500 database for the period 1997–2001. The manufacturing industry was selected for the research sample because firms in this industry tend to employ different types of strategies in order to compete effectively. As explained by Meric, Weidman, Welsh, and Meric (2002), firms in this industry have been facing fierce competition both domestically and internationally and they therefore need to have a clear strategy in order to compete effectively and to capture local and world market shares.

⁴ Conditioned on the STRA being equal to 1 for innovative firms and 0 for cost-efficiency firms, the negative coefficient on STRA*IND indicates that the impact of board independence on performance will be less positive for innovative firms than for cost-efficiency firms. This is because the impact of board independence on performance for innovative firms is represented by the sum of the coefficients on IND, and STRA*IND. For cost efficiency firms, however, the impact of board independence on performance is represented by the coefficient on IND.

Ownership data and information about boards of directors was obtained from proxy statements retrieved from EDGAR electronic filing system database. The sample is restricted to firms that provided complete data for five consecutive years (1997–2001) for each of the following: assets; liabilities; shareholders equity; net income; cost of goods sold; research and development expenses; property; plant and equipment; market value; number of outstanding shares; number of directors on the boards; number of outside directors on the boards; number of shares owned by 5% or more shareholders; and the status of the CEO on corporate boards.

Table 1 summarizes the sample selection. We eliminate 271 firms because they are listed in non-manufacturing industries and 120 firms because they provide incomplete data. We use data from the year 1997 to classify our sample firms into cost efficiency and innovation strategies. Our final sample consists of 436 firm-year observations (109 firms for 4 years).

3.2. Variable measurements

The following variables were constructed using the raw data from Compustat S&P 500 and information found in the proxy statements which the firms filed through the EDGAR database.

3.2.1. Competitive strategy (STRA)

To measure competitive strategy, we adopt the approach introduced by Singh and Agarwal (2002). A firm's competitive strategy is determined by a hierarchical cluster analysis of the following variables: R&D Intensity (ratio of research and development expenses to total sales revenues), Asset Utilization Efficiency (ratio of total sales revenues

Table 1
Sample selection for Compustat S&P 500 firms in manufacturing industry

Panel A: Selection of firms		
Total number of firms listed in Compustat S&P 500		500
Less:		
Non-manufacturing firms:		
– Mineral industries (SIC 1000–1499)	20	
– Construction industries (SIC 1500–1799)	4	
– Transportation, communications and utilities (SIC 4000–4999)	64	
– Wholesale trade (SIC 5000–5199)	11	
– Retail trade (SIC 5200–5999)	39	
– Financial, insurance, and real estate industries (SIC 6000–6799)	81	
– Service industries (SIC 7000–8999)	49	
– Other industries (SIC 9000–9999)	3	(271)
Sample before data restrictions		229
Incomplete data for five consecutive years (1997–2001)	46	
Unable to obtain data from proxy statements	74	(120)
Total		109
Panel B: Sampled firms according to their competitive strategy		
Strategy of innovation	46	
Strategy of cost efficiency	63	
Total		109

to total assets), and Premium Price Capability (ratio of gross margin to total sales revenues). The selected variables represent the unique features of Porter's strategic archetypes.

The two essential dimensions of a business strategy put forth in the Porter's (1985) model are "the search for new or unique products enabling firms to charge premium price" and "asset utilization efficiency". The variables used in the cluster analysis reflect these dimensions. For instance, the intensity of a firm's R&D activity indicates the strategic importance of innovation to that firm. Firms that invest heavily in R&D are most likely trying to compete on the basis of innovative products and services. Consequently, we expect that firms pursuing a strategy of innovation will have higher ratios of R&D Intensity than firms pursuing a cost-efficiency strategy.

Asset Utilization Efficiency indicates how strategically important operational efficiency is to a firm. Firms pursuing a strategy of cost efficiency tend to operate in a stable environment, produce standard products, and employ standardized operating procedures. Therefore, these firms tend to enjoy a high level of stability and a high degree of operational efficiency. In contrast, firms pursuing a strategy of innovation tend to face more uncertainty in generating revenues since they are betting on products that have not yet established their niche in the marketplace (Biggadike, 1979). Thus, we predict that firms pursuing a strategy of cost efficiency will have higher ratios of asset utilization efficiency than firms pursuing a strategy of innovation.

Premium Price Capability indicates firms' ability to charge their customers premium prices. As firms pursuing a strategy of innovation tend to offer unique products and services, they are able to charge these prices (Lynn, 1994). Therefore, we expect that firms pursuing a strategy of innovation will score higher in the Premium Price Capability dimension as compared to firms pursuing a strategy of cost efficiency. Previous studies that use cluster analyses to classify firms into their competitive strategy include Marlin, Huonker, and Sun (2002), Singh and Agarwal (2002), Chenhall and Langfield-Smith (1998), and Lassar and Kerr (1996).

Two distinct clusters were extracted from a hierarchical cluster analysis. Cluster one consists of 46 firms and cluster two consists of 63 firms. *T*-tests were performed to compare the two clusters in terms of R&D Intensity, Asset Utilization Efficiency and Premium Price Capability. Consistent with our expectation, the results of these tests indicate that compared to cluster two, cluster one has significantly higher scores for R&D Intensity and Premium Price Capability, but significantly lower scores for Asset Utilization Efficiency. Consequently, we consider firms in cluster one to be those that pursue a strategy of innovation and firms in cluster two to be those that pursue a strategy of cost efficiency.

3.2.2. Board independence (IND)

Board independence is measured as the ratio of outside directors to total number of directors on the board. Outside directors are those whose principal occupations are not with the company as indicated in the proxy statements. Current or past employees of the firm that are on the board are considered inside directors.

3.2.3. Performance (ROE and ROI)

Various measures have been used in the literature to represent firm performance. While market-based measures tend to be more objective than accounting-based measures, they are

also affected by many uncontrollable factors. Hutchinson and Gul (2004) argue that accounting-based performance measures reflect the results of managers' actions and are therefore preferable to market-based measures when investigating the relationship between corporate governance variables and firm performance. Since the purpose of this study is to investigate the effect of competitive strategy on the relationship between board independence and performance, we use return on equity (ROE) and return on investment (ROI) to measure firm performance. Return on equity is measured as income before extraordinary items divided by total equity, while return on investment is measured as income before extraordinary items divided by total invested capital (the sum of long term debt, minority interest, and common shareholder equity).

3.2.4. Control variables

We control for firm size (LOGTA), leverage (LEV), large shareholders (OWN5%), board size (BSIZE), investment opportunity set (IOS), and whether or not the CEO is also the chairman of the board of directors (CEO). A number of authors (e.g., Frank & Goyal, 2003; Ramaswamy, 2001) have suggested that firm size might influence firm performance. Accordingly, firm size has been used extensively as a control variable in the empirical analysis of firm performance. We use logarithm function of total assets as the indicator of firm size. Leverage influences firm performance through monitoring activities by debt holders, and we measure it as total liabilities divided by total equity. Previous studies (e.g., Core, Holthausen, & Larker, 1999; Cyert, Kang, & Kumar, 2002) indicate that large shareholders also affect firm performance because they are able to monitor the CEO in order to mitigate agency problems and increase efficiency. We measure large shareholders as the ratio of stock owned by 5% or more shareholders to total number of common shares outstanding. The size of the board of directors might also affect firm performance through the relative influence of the CEO on various board sizes. Yermack (1996) argues that larger boards are less effective and more susceptible to the influence of the CEO. However, Dallas (2001) argues that a larger board size brings more resources to firms and therefore might improve their performance. We use the total number of directors on the board to measure board size. Investment opportunity set (IOS) might affect performance because of the need for firms with a high level of investment opportunity (IOS) to incur higher monitoring costs (Anderson, Francis, & Stokes, 1993). We use the ratio of gross property, plant and equipment (at historical cost) to the market value of the firm (market value of equity plus book value of liabilities) to measure the investment opportunity set. Finally, we control for the relative influence of the CEO on a board of directors by using a dummy variable to represent whether or not the CEO also serves as the chairman of the board. Gul and Leung (2004) suggest that CEOs who also serve as board chairmen could diminish the boards' ability to exercise effective control over management and thereby negatively affect performance.

4. Data analysis and result

4.1. Descriptive statistics and correlations

Table 2 presents descriptive statistics about the variables used in this study. The average ratio of outside directors to total number of directors on the board is 70.3% with a maximum

Table 2
Descriptive statistics

Variable	Mean	S.D.	Median	Minimum	Maximum
ROE	0.115	0.443	0.147	-6.194	1.410
ROI	0.088	0.306	0.105	-5.240	0.520
IND	0.703	0.207	0.750	0.250	0.933
STRA	0.422	0.498	0.000	0.000	1.000
STRA*IND	0.412	0.372	0.000	0.000	1.000
LOGTA	3.671	0.548	3.651	2.054	5.173
LEV	1.564	1.455	1.162	0.033	8.897
OWN5%	0.167	0.157	0.143	0.000	0.698
BSIZE	10.176	2.747	10.000	4.000	18.000
IOS	0.394	1.985	0.155	0.003	33.066
CEO	0.789	0.401	1.000	0.000	1.000

ROE is return on equity as measured by net profit after tax before extra-ordinary items divided by common shareholder equity; ROI is return on investment as measured by net profit after tax before extra-ordinary items divided by total invested capital (the sum of long term debt, minority interest and common shareholder equity); IND is the board independence as measured by number of outside directors divided by total number of directors on the board; STRA is an indicator of a firm's competitive strategy and equal to 1 for innovative firms and 0 for cost-efficiency firms; STRA*IND is the interaction between STRA and IND; LOGTA is the size of the firm as measured by a logarithmic function of the firm's total assets; LEV is the ratio of total liabilities to total shareholders equity; OWN5% is the ratio of number of shares owned by large shareholders (more than 5%) to total outstanding common shares; BSIZE is the number of directors on the board; IOS is investment opportunity set as measured by the ratio of gross property, plant and equipment (at historical cost) to the market value of the firm (market value of equity plus book value of liabilities); and CEO is an indicator of whether or not a firm's CEO is also the chair of the board of director (CEO is equal to 1 if the CEO is also the chair of the board and 0 otherwise).

of 93.3% and a minimum of 25%. The average size of the boards is 10.18 with a maximum of 18 and a minimum of 4. The average proportion of total shares owned by large shareholders of the sample firms is 16.7%, with a maximum of 69.8% and a minimum of 0%. The firms' average size (as measured by a logarithmic function of the firms' total assets) is 3.67, ROE is 11.5%, ROI is 8.8%, IOS is 39.4%, and leverage is 156.4%.

Table 3 shows the Pearson's correlation for all variables used in this study. The two performance variables (ROE and ROI) are highly correlated ($r=0.917$; $p<0.001$), indicating that they measure the same construct. Board independence (IND) has positive and significant correlations with both ROE and ROI ($r=0.165$; $p<0.001$; and $r=0.104$; $p=0.018$ for ROE and ROI respectively), indicating that firms benefit from the presence of outside directors. Business strategy (STRA) has negative and significant correlations with firm size (LOGTA, $r=-0.165$; $p<0.001$), leverage (LEV, $r=-0.280$; $p<0.001$), and board size (BSIZE, $r=-0.199$; $p<0.001$). The negative correlations indicate that firms pursuing a strategy of innovation tend to be smaller, use less debt financing, and have smaller board size as compared to firms pursuing a strategy of cost efficiency. The interaction between strategy and independence (STRA*IND) is negative and marginally significant for ROE ($r=-0.116$; $p=0.087$) and negative but not significant for ROI ($r=-0.092$; $p=0.114$). This negative correlation between STRA*IND and performance provides early support for the hypothesized relationship between these two variables. Board independence (IND) is also positively and significantly correlated with leverage (LEV, $r=0.170$; $p<0.001$), board size (BSIZE, $r=0.147$; $p=0.001$), and CEO ($r=0.212$;

Table 3
Pearson's correlations among variables ($n=436$) (p -values in parenthesis)

Variable	ROE	ROI	IND	STRA	STRA*IND	LOGTA	LEV	OWN5%	BSIZE	IOS	CEO
ROE	1										
ROI	0.917 (0.000)	1									
IND	0.165 (0.000)	0.104 (0.018)	1								
STRA	0.076 (0.184)	0.071 (0.196)	-0.041 (0.350)	1							
STRA*IND	-0.116 (0.087)	-0.092 (0.114)	0.206 (0.000)	0.929 (0.000)	1						
LOGTA	0.016 (0.719)	0.021 (0.630)	0.053 (0.234)	-0.165 (0.000)	-0.115 (0.009)	1					
LEV	0.048 (0.277)	-0.014 (0.744)	0.170 (0.000)	-0.280 (0.000)	-0.242 (0.000)	0.321 (0.000)	1				
OWN5%	0.009 (0.850)	-0.005 (0.910)	-0.022 (0.622)	-0.074 (0.102)	-0.074 (0.102)	-0.258 (0.000)	0.144 (0.001)	1			
BSIZE	0.100 (0.028)	0.091 (0.084)	0.147 (0.001)	-0.199 (0.000)	-0.172 (0.000)	0.585 (0.000)	0.302 (0.000)	-0.064 (0.156)	1		
IOS	-0.051 (0.259)	-0.064 (0.156)	-0.061 (0.173)	0.035 (0.439)	0.008 (0.852)	-0.049 (0.271)	-0.029 (0.513)	0.068 (0.140)	0.002 (0.958)	1	
CEO	0.052 (0.235)	0.008 (0.851)	0.212 (0.000)	-0.051 (0.249)	0.014 (0.747)	-0.123 (0.005)	0.112 (0.011)	0.117 (0.009)	-0.087 (0.054)	0.023 (0.610)	1

ROE is return on equity as measured by net profit after tax before extra-ordinary items divided by common shareholder equity; ROI is return on investment as measured by net profit after tax before extra-ordinary items divided by total invested capital (the sum of long term debt, minority interest and common shareholder equity); IND is the board independence as measured by number of outside directors divided by total number of directors on the board; STRA is an indicator of a firm's competitive strategy and equal to 1 for innovative firms and 0 for cost-efficiency firms; STRA*IND is the interaction between STRA and IND; LOGTA is the size of the firm as measured by a logarithmic function of the firm's total assets; LEV is the ratio of total liabilities to total shareholders equity; OWN5% is the ratio of number of shares owned by large shareholders (more than 5%) to total outstanding common shares; BSIZE is the number of directors on the board; IOS is investment opportunity set as measured by the ratio of gross property, plant and equipment (at historical cost) to the market value of the firm (market value of equity plus book value of liabilities); and CEO is an indicator of whether a firm's CEO is also the chair of the board of director (CEO is equal to 1 if the CEO is also the chair of the board and 0 otherwise).

$p < 0.001$). The positive correlations indicate that larger board size, specially when the CEO is also the chair of the board, generally reflects more independent boards.⁵ Furthermore, Table 3 also shows that the size of the firms (LOGTA) is positively and significantly correlated with leverage (LEV, $r = 0.321$; $p < 0.001$) and board size (BSIZE, $r = 0.585$; $p < 0.001$), but negatively and significantly correlated with large shareholders (OWN5%, $r = -0.258$; $p < 0.001$) and CEO ($r = -0.123$; $p = 0.005$). Leverage has positive correlations with large shareholders (OWN5%, $r = 0.144$; $p = 0.001$), board size (BSIZE, $r = 0.302$; $p < 0.001$), and CEO ($r = 0.112$; $p = 0.011$). CEO also has a positive and significant correlation with large shareholders (OWN5%, $r = 0.117$; $p = 0.009$), but has a negative and marginally significant correlation with board size (BSIZE, $r = -0.087$; $p = 0.054$).

4.2. Hypothesis testing

Tables 4 and 5 present the results of the regression analyses for ROE and ROI as the dependent variables, respectively. Regressions 1 and 3 (with the interaction variable STRA*IND) show the interactive effect of business strategy and board independence on performance, while regressions 2 and 4 (without the interaction variable STRA*IND) report the main effects of the independent variables on performance. Collinearity diagnostic tests were simultaneously performed with the regression tests. The variance inflation factor (VIF) is reported for each variable to demonstrate the stability of the MRA model. The variance in the regression coefficient increases as the VIF increases, which indicate that the estimate is unstable.⁶ Furthermore, we compute the White-corrected t -statistics to adjust for potential heteroskedasticity in our data.⁷ Since the results are consistent across both specifications, this paper discusses only the results reported in Table 4 (based on ROE as a measure of performance).

We use regression 1 to test the hypothesis that the impact of board independence on performance will vary across different strategies *and* that the relationship will be more

⁵ It is interesting to note that boards are more independent when the CEO is also the chair of the board. This is counter-intuitive since the concentrated decision making power as a result of CEO duality is likely to affect the board considerably. One possible explanation for this result is that the CEO who is also the chairman of the board tries to mitigate the negative image of the CEO duality by nominating more outside directors to the board. Based on data from Hong Kong listed companies, Gul and Leung (2004) also report a positive association between CEO duality and board independence.

⁶ Dielman (2001) proposes that any individual VIF larger than 10 indicates that multicollinearity may be influencing the least-squares estimates of the regression coefficients. Table 4 (regression 1) indicates that two of the independent variables (STRA and STRA*IND) have VIF larger than 10. In regression 2 (without the interaction terms), however, all the independent variables, including STRA, have VIF less than 2. It seems that the high VIF value for STRA and STRA*IND is due to the interaction terms (STRA*IND) included in regression 1. Hartmann and Moers (1999) argue that although the lower order effects (i.e., STRA and IND) and their interaction term (i.e., STRA*IND) in moderated regression analyses (MRA) are likely to be correlated, the fact that the coefficient of the interaction term in MRA is insensitive to changes in scale origins of the independent variables, multicollinearity between the independent variables and the interaction terms should not be a problem when applying MRA.

⁷ The White-corrected t -statistics and the corresponding p -values were obtained by using the HETCOV option on the OLS command in SHAZAM statistical software.

Table 4
Regression of return on equity on firms' competitive strategy, board independence, total assets, leverage, large shareholders, board size, investment opportunity set, and CEO

Variable	Prediction	Results					
		Regression 1 (with STRA*IND)			Regression 2 (without STRA*IND)		
		Coefficient β	White's <i>t</i> -values (<i>p</i> -values) ^a	VIF	Coefficient β	White's <i>t</i> -values (<i>p</i> -values) ^a	VIF
Intercept	?	0.031	0.212 (0.832)		0.039	0.248 (0.804)	
IND	+	0.413	2.928 (0.004)	2.271	0.301	1.725 (0.086)	1.234
STRA	?	0.153	1.758 (0.079)	13.386	0.013	0.377 (0.706)	1.116
STRA*IND	–	–0.225	–2.824 (0.005)	12.398			
ASSET	+	0.077	1.822 (0.069)	1.840	0.075	1.780 (0.076)	1.834
LEV	+	0.020	1.493 (0.136)	1.404	0.021	1.595 (0.111)	1.387
OWN5%	+	–0.023	–0.184 (0.854)	1.171	–0.026	–0.208 (0.836)	1.170
BSIZE	?	0.016	2.104 (0.036)	1.595	0.015	2.057 (0.040)	1.589
IOS	–	–0.012	–2.842 (0.005)	1.035	–0.011	–2.007 (0.045)	1.017
CEO	–	–0.045	–1.005 (0.316)	1.153	–0.044	–0.989 (0.323)	1.153
<i>R</i> ²			0.194			0.190	
Adjusted <i>R</i> ²			0.137			0.136	
<i>F</i>			3.998 (0.001)			4.163 (0.001)	

The dependent variable is return on equity as measured by net profit after tax before extra-ordinary items divided by common shareholder equity; IND is the board independence as measured by number of outside directors divided by total number of directors on the board; STRA is an indicator of a firm's competitive strategy and equal to 1 for innovative firms and 0 for cost-efficiency firms; STRA*IND is the interaction between STRA and IND; LOGTA is the size of the firm as measured by a logarithmic function of the firm's total assets; LEV is the ratio of total liabilities to total shareholders equity; OWN5% is the ratio of number of shares owned by large shareholders (more than 5%) to total outstanding common shares; BSIZE is the number of directors on the board; IOS is investment opportunity set as measured by the ratio of gross property, plant and equipment (at historical cost) to the market value of the firm (market value of equity plus book value of liabilities); and CEO is an indicator of whether a firm's CEO is also the chair of the board of director (CEO is equal to 1 if the CEO is also the chair of the board and 0 otherwise).

^a The *p*-values are based on two-tailed tests, except in cases of a directional prediction, where we use a one-tailed test.

positive for cost efficiency than for innovation firms. The *F*-statistics are highly significant ($F=3.998$; $p<0.001$). The results indicate that the coefficient on STRA*IND is significantly negative ($\beta=-0.225$; $t=-2.824$, $p=0.005$) and that both the coefficient on IND (0.413) and the sum of the coefficients on IND and STRA*IND ($0.413-0.225=0.188$) are positive. Conditioned on STRA being equal to 1 for innovation firms and to 0 for cost-efficiency firms, the relationship between board independence and performance for cost-efficiency firms is represented by the coefficient on IND. For innovation firms, the relationship between board independence and performance is represented by the sum of the coefficients on IND and STRA*IND. The results therefore indicate that the relationship between board independence and performance is stronger for cost-efficiency firms ($IND=0.413$) than for innovation firms ($0.413\ IND-0.225\ STRA*IND=0.188$). These results are consistent with the hypothesis developed for this study. They support the view that for innovation firms, the benefits of outside directors' manager-monitoring activities is compensated by the tendency that the monitoring activities by the board limit managers' ability to pursue risky but strategically important activities.

Table 5

Regression of return on investment on firms' competitive strategy, board independence, total assets, leverage, large shareholders, board size, investment opportunity set, and CEO

Variable	Prediction	Results					
		Regression 3 (with STRA*IND)			Regression 4 (without STRA*IND)		
		Coefficient β	White's <i>t</i> -values (<i>p</i> -values) ^a	VIF	Coefficient β	White's <i>t</i> -values (<i>p</i> -values) ^a	VIF
Intercept	?	0.008	0.051 (0.959)		0.055	0.403 (0.687)	
IND	+	0.227	2.481 (0.015)	2.271	0.160	1.274 (0.203)	1.234
STRA	?	0.113	2.096 (0.038)	13.386	0.014	0.474 (0.636)	1.116
STRA*IND	–	–0.134	–2.680 (0.008)	12.398			
ASSET	+	0.053	2.315 (0.022)	1.840	0.052	1.956 (0.052)	1.834
LEV	+	0.001	0.075 (0.940)	1.404	0.001	0.061 (0.952)	1.387
OWN5%	+	–0.007	–0.065 (0.948)	1.171	–0.009	–0.081 (0.935)	1.170
BSIZE	?	0.013	2.037 (0.042)	1.595	0.013	1.907 (0.057)	1.589
IOS	–	–0.011	–2.864 (0.005)	1.035	–0.011	–2.162 (0.031)	1.017
CEO	?	–0.037	–0.978 (0.329)	1.153	–0.037	–0.967 (0.334)	1.153
<i>R</i> ²			0.241			0.236	
Adjusted <i>R</i> ²			0.198			0.191	
<i>F</i>			3.087 (0.001)			3.002 (0.001)	

The dependent variable is return on investment as measured by net profit after tax before extra-ordinary items divided by total invested capital (the sum of long term debt, minority interest and common shareholder equity); IND is the board independence as measured by number of outside directors divided by total number of directors on the board; STRA is an indicator of a firm's competitive strategy and equal to 1 for innovative firms and 0 for cost-efficiency firms; STRA*IND is the interaction between STRA and IND; LOGTA is the size of the firm as measured by a logarithmic function of the firm's total assets; LEV is the ratio of total liabilities to total shareholders equity; OWN5% is the ratio of number of shares owned by large shareholders (more than 5%) to total outstanding common shares; BSIZE is the number of directors on the board; IOS is investment opportunity set as measured by the ratio of gross property, plant and equipment (at historical cost) to the market value of the firm (market value of equity plus book value of liabilities); and CEO is an indicator of whether a firm's CEO is also the chair of the board of director (CEO is equal to 1 if the CEO is also the chair of the board and 0 otherwise).

^a The *p*-values are based on two-tailed tests, except in cases of a directional prediction, where we use a one-tailed test.

With respect to the control variables, the results indicate that the coefficients on LOGTA and BSIZE are positive and significant while the coefficient on IOS is negative and significant. The positive and significant coefficient on LOGTA indicates that firm size has a positive impact on performance. The positive and significant coefficient on BSIZE is consistent with the view that more members bring more resources to the firms, which results in better performance. The negative and significant coefficient on IOS suggests that a higher investment opportunity set is associated with the need to incur higher monitoring costs, which results in lower performance (Anderson et al., 1993).

To compare our results with previous studies, we run regression 2 to investigate the direct effects of board independence on performance. The results indicate that the coefficient on IND (γ_1), is positive but only marginally significant ($t=1.725$; $p=0.086$). Given that the relationship between board independence and performance differs for cost-efficiency firms as compared to innovation firms (as indicated by the results using

regression 1), the inclusion of the interaction variable (STRA*IND) provides a better picture of the relationship between board independence and performance. It is interesting to note that the coefficient on STRA for regression 2 is positive but not significant, while this coefficient is positive and marginally significant according to regression 1. The non-significant coefficient on STRA for regression 2 indicates that the performance of innovation firms is not significantly different from that of cost-efficiency firms across all levels of board independence.

To verify that the relationship between board independence and performance differs significantly across strategies, we perform additional analyses by splitting the sample firms into cost efficiency and innovation sub-groups and run the regressions for each category. Table 6 reports the results of this procedure.

Table 6 indicates that the relationship between board independence and performance varies across different strategies. For firms pursuing a strategy of cost efficiency (regression 5), the relationship is positive and highly significant, while for firms pursuing a strategy of innovation (regression 6), the relationship is positive but not significant. To investigate whether the relationship between board independence and performance is significantly

Table 6
Regression of return on equity on firms' competitive strategy, board independence, total assets, leverage, large shareholders, board size, investment opportunity set, and CEO based on split sample of strategy of cost efficiency and strategy of innovation

Variable	Prediction	Results					
		Regression 5 (strategy of cost efficiency)			Regression 6 (strategy of innovation)		
		Coefficient β	White's <i>t</i> -values (<i>p</i> -values) ^a	VIF	Coefficient β	White's <i>t</i> -values (<i>p</i> -values) ^a	VIF
Intercept	?	0.006	0.046 (0.964)		-0.058	-0.189 (0.850)	
IND	+	0.380	3.592 (0.001)	1.370	0.228	1.274 (0.203)	1.152
ASSET	+	0.039	2.842 (0.005)	1.729	0.084 (0.052)	1.958	1.978
LEV	+	0.047	4.345 (0.001)	1.300	-0.024	-0.837 (0.403)	1.301
OWN5%	+	-0.109	-1.076 (0.283)	1.128	0.220	0.830 (0.407)	1.318
BSIZE	?	0.001	0.213 (0.831)	1.510	0.035	2.408 (0.017)	1.571
IOS	-	-0.161	-2.869 (0.004)	1.192	-0.012	-1.152 (0.251)	1.046
CEO	?	-0.041	-1.006 (0.316)	1.203	-0.044	-0.548 (0.584)	1.119
<i>R</i> ²			0.263			0.165	
Adjusted <i>R</i> ²			0.232			0.142	
<i>F</i>			5.468 (0.001)			1.993 (0.038)	

The dependent variable is return on equity as measured by net profit after tax before extra-ordinary items divided by common shareholder equity; IND is the board independence as measured by number of outside directors divided by total number of directors on the board; LOGTA is the size of the firm as measured by a logarithmic function of the firm's total assets; LEV is the ratio of total liabilities to total shareholders equity; OWN5% is the ratio of number of shares owned by large shareholders (more than 5%) to total outstanding common shares; BSIZE is the number of directors on the board; IOS is investment opportunity set as measured by the ratio of gross property, plant and equipment (at historical cost) to the market value of the firm (market value of equity plus book value of liabilities); and CEO is an indicator of whether a firm's CEO is also the chair of the board of director (CEO is equal to 1 if the CEO is also the chair of the board and 0 otherwise).

^a The *p*-values are based on two-tailed tests, except in cases of a directional prediction, where we use a one-tailed test.

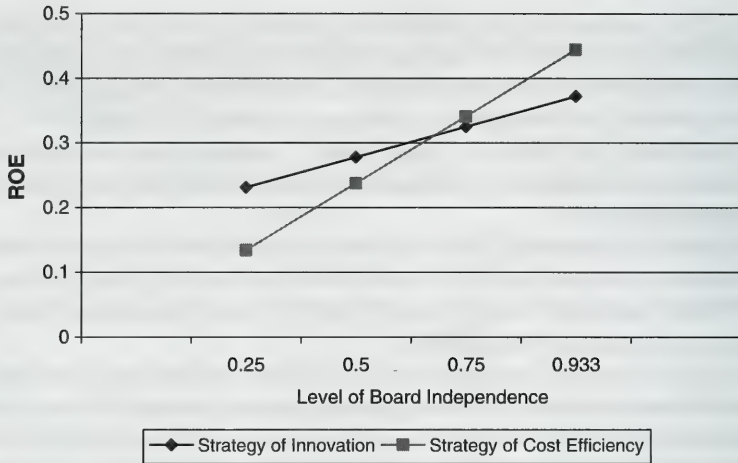


Fig. 1. The Effect of Board Independence on Performance across Different Strategies. The graph shows predicted values of ROE based on the regression estimates reported in Table 4 (regression 2). The values of ROE for firms that pursue a strategy of innovation are the sum of the estimated coefficients for the intercept, IND, STRA, and STRA*IND. The values of ROE for firms that pursue a strategy of cost efficiency are the sum of the estimated coefficients for the intercept and IND.

different for cost-efficiency firms than for innovation firms, we perform a Z-test as proposed by Chen and Popovich (2002).⁸ We obtain a z-score of 2.592, which is greater than the critical value of 2.58 for an α -level of 0.01. This result indicates that the relationship between board independence and performance for firms pursuing a strategy of cost efficiency is significantly more positive than for firms pursuing a strategy of innovation. This result is consistent with those reported in Table 4.

The relationship between board independence and firm performance across different strategies can be better illustrated in graphical terms. Fig. 1 shows the predicted values of ROE as a function of firms' competitive strategy and board independence based on the regression estimates reported on Table 4 (regression 2).

As shown in Fig. 1, the relationship between board independence and performance is positive for both cost-efficiency and innovation firms. However, this relationship is stronger for cost-efficiency firms than for innovation firms. Conditioned on the STRA being equal to 1 for firms pursuing a strategy of innovation and to 0 for firms pursuing a strategy of cost efficiency, the ROE values for cost-efficiency firms are the sum of the estimated coefficients for the intercept and IND, and the ROE values for innovation firms are the sum of the estimated coefficients for the intercept, IND, STRA, and STRA*IND. Fig. 1 shows that when board independence is at the minimum level (25% outside directors on the boards in our sample), innovation firms perform better than cost-

⁸ Chen and Popovitch (2002) propose that to examine whether the correlation in sub-group A differs from that in sub-group B, a Z-test can be performed using the following formula: $Z = \frac{z_{ra} - z_{rb}}{\sqrt{1/(n_a - 3) + 1/(n_b - 3)}}$, where both z_{ra} and z_{rb} are the Fisher's Z-values for sub-group A and sub-group B, respectively and n_a and n_b are sample sizes of sub-group A and sub-group B, respectively.

efficiency firms. However, as the level of board independence increases, the performance advantage of innovation firms over cost-efficiency firms decreases. The positive slopes for both innovation firms and cost-efficiency firms suggest that increasing the level of board independence will result in improved performance. However, the performance implication of board independence is stronger for cost-efficiency firms than for innovation firms.

5. Summary and discussion

In this paper, we investigate the effect of board independence on performance across different strategies. The results are consistent with our hypothesis that firms which pursue a strategy of cost efficiency benefit more from an increased level of board independence than firms that pursue a strategy of innovation.

These results suggest that firms for which efficiency is critical to success will benefit more from the boards' management-monitoring activities than firms for which innovation is critical to success. The benefit of the boards' management-monitoring activities in terms of increased efficiency will be compensated by the tendency of these activities to limit managers' ability to implement creative and innovative decisions. This might be the reason why the interaction terms of board independence and competitive strategy are significantly negative.

The results have important policy and practical implications. Although they support recent reforms aiming to tighten requirements for board independence and thereby facilitate more effective board supervision of managers (e.g., OECD Principles of Corporate Governance, 1999; The Sarbanes-Oxley Act of 2002; Toronto Stock Exchange Corporate Governance Guidelines of 1996), the impact of this increased independence on performance might not be the same for all firms. Additionally, the focus on manager-monitoring roles indicated by recent legal reforms regarding corporate boards may have caused board members to ignore their strategic-management and relational roles (Baysinger & Butler, 1985). Outside directors who gain greater knowledge and experience of external affairs can more viably reduce uncertainties surrounding the formulation and implementation of strategy (Dallas, 2001) and more effectively deal with uncertainties involving firms' customers, competitors, suppliers, technology, and economic circumstances (Pearce & Zahra, 1992). Therefore, firms that pursue a strategy of innovation might emphasize board members' strategic-management and relational roles more than their management-monitoring role.

The results of this study suggest that board independence should not be thought of as a panacea which can increase performance for all firms, as has been implied by the recent reforms regarding board structures, composition, and practices. Rather, the results suggest that management need to consider their firm's competitive strategy in determining the level of board independence since the impact of board independence on performance varies systematically across different strategies.

However, the results of this study should be interpreted in light of two limitations. First, this study uses data from manufacturing sectors. Further research is required in order to determine whether the results of this study can be extended to other industries. Second, although the results show that the relationship between board independence and

performance differs across business strategies, other variables might also affect this relationship. Future research might consider other variables such as leadership style and board members' expertise when investigating the relationship between board independence and performance.

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Book Review Section

The book review section is interested in works published in any language, as long as they are comparative or international in character. The author or publisher of such works should furnish the book review editor with two (2) copies of the work, including information about its price and the address where readers may write for copies. Reviews will be assigned by the book review editor. No unsolicited reviews will be accepted. Suggestions of works that might be reviewed are welcomed.

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Book reviews

John Innes (Ed.), Handbook of Management Accounting, 3rd edition. CIMA Publishing, Oxford (2004). xxviii + 970 pages, 183.71 euros, ISBN: 0 7506 6518 1

1. Introduction

This book focuses on management accounting research findings in a form and style that is easily understandable, especially for practitioners. It alerts the reader to the rate of change in management accounting knowledge. Practitioners need to monitor the developments in management accounting in other organizations to ensure that the best tools and techniques are adopted by their own respective organizations.

The most important themes of the book are: cost commitment during the design process and external focus of management accounting.

The book discusses 10 techniques which play a useful role during the design process: (1) strategic management accounting, (2) competitor analysis, (3) research and development performance measurement, (4) product life-cycle costing, (5) target costing, (6) functional costing, (7) cost tables, (8) cost management, (9) environment-related management accounting, and (10) design.

The book also presents ten strategic elements for the external focus of management accounting: (1) strategic financial management, (2) competitor analysis, (3) research and development performance measurement, (4) target costing, (5) environment-related management accounting, (6) outsourcing, (7) value chain analysis, (8) design, (9) performance measurement, and (10) benchmarking. These techniques are grouped into five sections: introduction, planning, costing, decision-making, and control. Topics in each section have been well covered.

2. Part A—introduction

The introduction includes topics which cover strategic management accounting and its application in small businesses.

3. Part B—planning

“Planning” consists of 12 chapters that relate to the planning process. These chapters alert practitioners to the crucial elements that need to be considered at the planning stage. These include introduction to variance analysis, competitor analysis, and evaluating

research and development activities. Readers are also exposed to different types of budgets, including cash, capital, zero-based, and activity-based budgeting. To help readers understand activity-based budgeting, three detailed case studies are provided. This section ends with a chapter on changes in management accounting, which offers some knowledge and exposure on why and how management accounting changes to the readers.

4. Part C—costing

“Costing”, the third part of the book, has 11 chapters. Beginning with standard costing and new costing-related techniques, these chapters expose readers to the different types of costing methods. The definition, principal, problems, and advantages of each technique are explained in separate chapters. This arrangement helps readers focus on required areas and related sub-sections. Case studies are also provided as an appendix to the chapter on activity-based costing (ABC). Readers may be surprised by the new techniques that are available such as energy and functional costing methods. The book highlights the advantages of product life-cycle and its necessity, especially in the current, quick changing environment. These topics illustrate the broad coverage of this book which should appeal to readers from different academic backgrounds and organizations.

5. Part D—decision making

The section on decision making has sixteen chapters. The first provides an introduction to cost management, which exposes readers to the elements of traditional cost management. ABC, ABCM, ABM, and ABB are all explained well in one chapter to minimize confusion. Detailed case studies provide examples of ABM and ABC in practice. Several new and important techniques such as business process re-engineering (BPR), throughput accounting, outsourcing, and value-chain analysis are included. Readers are exposed to several techniques that need to be considered during the decision-making process. Two chapters focus on issues related to decision making on pricing and transfer pricing. This section also relates to other current and important types of decision making and management accounting such as the environment, shareholder value, supply chain, product design, and human resources. It alerts readers to the need for a wide range of factors and techniques in any decision making process.

6. Part E—control

The last part of the book has ten chapters dealing with different types of financial-control and performance measures. Readers are given an overview of financial control methods and their importance in the current, rapidly changing business environment. Both financial and nonfinancial measures are introduced. A case study highlighting the importance and usefulness of developing a nonfinancial measurement system is provided in one of the chapters. The development of “Tableau de Bord”, business intelligence tools, benchmarking, and balanced performance measurement system chapters follow. Three chapters help the reader understand the numerous ways to measure the performance of their organizations by alerting practitioners that they cannot rely on only one particular performance-

measurement tool. This section provides information that can help an organization remain innovative and competitive.

7. General opinion

The book frequently refers readers to other related chapters, for example, on page 13: “However, the two costing techniques which will be highlighted in relation to strategic management accounting are target costing (chapter 24) and cost tables (chapter 26)”. Empirical evidence to support certain points is also referred. For example, the importance of planning and strategy in the “real-world” is supported by empirical studies on small businesses (pages 29–31). The book also highlights the issues of a particular technique by referring the reader to previous survey findings or research conducted on the topic. Detailed “real” case studies are also included in several chapters—for example, there are three selected case studies in chapter 14.

One aim of the book is to introduce the readers to the latest and most important tools and techniques such as the impact of the global economy on strategic monitoring and competitor analysis. Variance is looked at in a more relevant way, highlighting broad sets and main ways to achieve each issue in several chapters.

Diagrams are used liberally to enhance discussion. They provide an overview as well as a better understanding. Chapters 12 (“zero-based budgeting”) and 13 (“activity-based budgeting”) are well organized and explained. Reasons for advancing new techniques and methods over traditional ones are fully explained, which allows readers to choose techniques that best suit their organization.

There are, however, several sections in the book that might be difficult for some readers to understand, especially those without an accounting background. For example, the explanation of opportunity costs and net present value (NPV) in chapters 3 (“strategic management accounting in the small business”) and 5 (“strategic financial management”), respectively, are not clearly explained. These points could be better understood if simple examples were provided.

Although the book is good about referring the reader from one chapter to another for further explanation, sometimes an introductory explanation on a particular issue is essential in the chapter when it is first mentioned. The explanation should at least include comparison between the earlier mentioned issue/tool, its advantages, history, and usage rather than just mentioning it and leaving it to be explained in a much later chapter. This would help readers grasp the basic view of the issue/tool in the chapter in which it is first mentioned.

8. Conclusion

The editor and authors of this book on management accounting have in general made an extensive effort to tackle a wide range of traditional and new management-accounting techniques. It is a well-organized book covering five important elements of management accounting. Since most readers would not have time to read the book straight through, the division of the book into five sections which are then subdivided into chapters will help readers go straight to the issue/tool that interests them. Most importantly, the book’s greatest contribution is the rich knowledge on management accounting techniques it

provides to practitioners, who may be with or without accounting knowledge. Hence, I would highly recommend this book to anyone who is interested in understanding any techniques in management accounting.

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Corporate Finance—Theory and Practice, Pierre Vernimmen, Pascal Quiry, Maurizio Dallocchio, Yann Le Fur, Antonio Salvi. Dalloz/Wiley, Paris/London (2005). 1030 pages, \$85.00, €60.00, ISBN: 2-247-06391-8

Does the world need another corporate finance book? This one, at least, is different. In great contrast with such leading texts as Ross, Westerfield, and Jaffe (2004) or Brealey, Myers, and Allen (2005), *Corporate Finance—Theory and Practice* puts financial statement analysis at the core of the exposition. In this, the book sticks to the tradition of the French corporate finance manual written by Pierre Vernimmen in the 1970s, of which it is an offspring. The first of the four sections is entirely about financial statement analysis. The rest of the structure follows standard texts, with an exposition of net present value theory, risk, and corporate financial policies. Two other distinctive features of the book are its emphasis on institutional details, and its European focus (two of the authors work in a French bank, and the other two teach in an Italian business school).

For anyone who teaches corporate finance to European audiences, the promise of a text that highlights some of the institutional background is welcome. And recent accounting scandals have underscored that accounting is at the core of financial practice.

Is the promise fulfilled? The answer is mixed. The authors' decision to start out with financial statement analysis has some pedagogical costs. For example, I am uncomfortable with the fact that the first discussion of the time value of money occurs in chapter 16. In my teaching experience, starting with general principles and working down to the details of free cash flow calculation works best. In the same vein, Section 1 contains normative statements on what the right financial structure is. But how is a student to react upon discovering the Modigliani-Miller irrelevance propositions some 20 chapters later? To some extent, these are minor quibbles, as Section 1 could be read after the other three—but then, the book should come with a user's manual explaining how different readers could best make use of it (students enrolled in a course, self-study students, practitioners needing a quickly accessible reference). Alternatively, the book structure should be altered.

More troubling is the order of presentation within the sections. For example, accruals are first defined in chapter 7 ("How to cope with the most complex points in financial accounts," p. 94). It is not clear why accruals (surely not a "complex" concept) are not defined in one of the six preceding chapters devoted to cash flows, earnings, etc. Perhaps these quirks can be attributed to the fact that the four authors divided up the work and did

not pay sufficient attention to structure. It is to be hoped that this will be fixed in future editions.

The theoretical parts are not the book's primary strength. The presentation of some key concepts is downright cryptic. What is a novice to make of the following highlighted passage (p. 444)?

The cost of capital is not the weighted average of two separate costs. The overall riskiness of the company is represented by the cost of capital, whose two key components are debt and equity. The costs of equity and debt are a function of the risk of the assets, the cost of overall capital and the respective weighting of each.

None of the authors is a native English speaker, and proper editing might have helped. But in places, the lack of clarity has nothing to do with language. It is not clear to me why the MM II formula, which has the ratio of debt to equity as an argument, is illustrated by a graph using the ratio of debt to total firm value as its horizontal axis (p. 663). This is sure to cause great bewilderment for first-time students of this central concept. Sometimes, the theoretical discussions indicate a lack of familiarity with academic finance. For example, the capital structure discussion features a laudable attempt at reviewing recent academic studies on the topic. But the choice of the academic studies reviewed is idiosyncratic and does not represent the current consensus of the profession. Why spend so much time on Ross' incentive-signaling model (1977) when it has long been rejected by the empirical literature? Finally, some statements are simply incorrect: "According to the semi-strong efficiency hypothesis, the abnormal return should be observable only on the day when the information becomes public." (p. 279). In fact, the semi-strong form of the efficient-market hypothesis does not rule out price reactions to privately informed trades before the event (all it rules out is underreaction or overreaction to the release of public information).

Clearly, the book's authors do not claim to be at the frontier of finance knowledge. But even for very concrete corporate valuation issues, this apparent detachment from theory can become problematic. Consider the computation of an unlevered beta—clearly a top-rate concern for many practitioners. On pp. 445–446, the authors give formulas for unlevered betas, without justification. That would be fine if there were a consensus in the profession on this issue. In fact, as Richard Ruback's recent work (2002) makes clear, the issue is quite a bit more complex.

Even the practice-oriented sections (the book's distinctive feature) are not always crystal-clear. Sometimes it is hard for the reader (or at least me) to figure out whether a sentence is a prescription or a description. For example, on p. 815 the authors state a "principle" according to which "when control of a listed company changes hands, minority shareholders receive the same premium as that paid to the majority shareholder." It is hard to infer from the surrounding discussion whether this principle (i) is an accurate description of the empirical reality, (ii) is an accurate description of the legal principles governing such transactions in European economies, or (iii) is just a principle that some market participants think is desirable.

Given the announced emphasis on practice and the volume taken up by financial statement analysis in the book, I would have expected in-depth discussions of creative accounting—perhaps a case study. But the book only offers a few passing mentions and a table listing dubious practices, without real discussion.

One of the book's targets are practitioners, who will not have the time to read it from cover to cover and will use it as a reference. How useful are they likely to find this book? In my view, Section 1 on financial analysis is the book's main strength, and its emphasis on practice will appeal to practitioners. It offers a nice complement to the classic corporate finance texts. The book comes with an accompanying website and a newsletter, both of which are useful. It remains in need of a better index: the index entry on "behavioral finance" picks up a discussion of behavioral studies for cash management.

This book is clearly different from the well-established corporate-finance texts. It is unlikely to displace them. The discussion of financial statement analysis will come as a useful complement. For the rest of finance, most readers will be better served by existing textbooks.

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Ethics, Governance and Accountability: A Professional Perspective, S. Dellaportas, K. Gibson, R. Alagiah, M. Hutchinson, P. Leung, D. Van Homrigh. John Wiley and Sons Australia, Milton (Qld) (2005). 363 pp., £27.95 / €46.20, ISBN: 0-470-80499-8

This textbook emphasizes that ethics need to be an essential feature if a firm is to achieve a sound business environment and long-run accountability. It builds on two main observations. First, lapses in ethical behavior seem to have caused many of the high-profile corporate collapses and financial scandals; second, even apparently good governance systems have been unable to prevent such scandals. Accounting professionals find themselves at the heart of this ethics crisis, which seriously deteriorates the public trust.

The book advocates the necessary reinforcement of ethics in accounting education. It generally addresses students from graduate (or upper undergraduate) programs in commerce and business administration, and more specifically students in a professional accounting program. References and practical illustrations are mainly related to Australian and U.S.A. settings. The approach is practitioner-oriented, combining concise presentations of theories, concepts, or frameworks, along with practical experiences and cases. Each chapter announces learning objectives and ends with a summary, key terms, understanding questions, and a practical case study. The textbook is structured in two parts. Part 1

(Chapters 1–4) deals with the concept of ethics at the level of individuals. Part 2 (Chapters 5–12) addresses ethics questions in a regulatory and corporate environment.

Chapter 1 introduces the framework for ethics in a business context. In this framework, stakeholders – whether capital providers, customers or the public at large – have expectations of companies regarding, for instance, a product's safety or financial-reporting quality. The authors provide real-world examples of unethical behavior by companies, professional accountants, auditors, or CFOs, and then discuss the sources of threats to ethical behavior. In parallel to the U.S. Sarbanes-Oxley Act (2002) and IFAC (2003) recommendations, they briefly depict recent efforts by Australian authorities to restore credibility and public confidence in financial reports.

Chapter 2 provides general background on what an *ethical decision* can be, and explains the different stages an individual goes through in the process of cognitive moral reasoning. Three well-accepted theories of ethics and their limitations are addressed: utilitarianism, rights, and justice. Each theory is exposed and an insightful parallel is made between stakeholders' natural rights and implied accountants' duties; i.e. that the *right to truth* imposes a moral obligation on accountants to ensure that financial statements are true and fair. The question of moral judgment is then covered following Kohlberg's model of cognitive development. Referring to cognitive accounting research, the authors point out that – contrary to other tertiary educated professions – the level of moral reasoning among accountants is not higher than that of the general population of adults. They blame a [too much] rule-based accounting education that potentially atrophies professional judgment and the ability of auditors to resist a client's pressure.

Chapter 3 is an institutional and normative presentation of the Australian accounting profession, based on the CPA Australia and the Institute of Chartered Accountants in Australia (2002) Joint Code of Professional Conduct, which has a structure and fundamental principles developed to parallel the IFAC (2003) Proposed Revised Code of Ethics for Professional Accountants. The code, which places professional accountants in a specific – sometimes hard to stand – triadic position between his/her client (or employer) and the public emphasizes the notion of public interest. But, despite intentions, the authors conclude that the code of conduct has been primarily used to serve the economic welfare of the profession rather than the public interest. This relative failure of the self-regulation process is attributed to a lack of ethical reasoning or behavior.

After explaining the main steps of the conventional decision-making process, chapter 4 details the ethical process of the American Accounting Association (1990), which was adopted by Australian professional accountants in 2002. A key development in this chapter is the hierarchy of ethical decision making developed in regard to previous points: (1) compliance with laws, (2) compliance with professional obligations and duties (e.g. the Code of Professional Conduct), and (3) reliance on individual moral reasoning in accordance with philosophical and normative theories of ethics. Based on this hierarchy, the authors try to enhance professional accountants' ethical reasoning by showing that mere compliance does not necessarily ensure that a decision has ethical value. For this purpose, they discuss benchmarks of fundamental ethical values (general core values, principles of professional conduct). Although largely based on utilitarian ethical principles, the AAA model is presented as a structured and rational tool likely to offer professionals practical guidance for resolving ethical questions.

Chapter 5 initiates Part 2, on corporate and regulatory factors, by introducing the concept of corporate governance. The approach taken is the shareholder-based – hence rather restrictive – owner-manager agency framework. The chapter discusses recent achievements and governance guidelines for Australian public companies, including board-monitoring effectiveness, the enhancement of audit quality, the promotion of ethical behavior by codes of conduct, and finally, the recognition of *other stakeholders'* interests through social responsibilities or human capital. One regrets that these “other stakeholders” (customers, suppliers, employees, lenders, the public at large, etc.) receive little consideration in the shareholder-based approach of corporate governance. A clear message (p. 126), however, is that effective corporate governance remains contingent on the promotion of core ethical values such as *trust, integrity, openness, responsibility, accountability* and *mutual respect* by top managers and directors. The monitoring function of corporate governance is then depicted following the usual distinction of internal (board, sub-committees, remuneration packages) and external (auditors, governing bodies, debt covenants) devices. Lack of due care from boards, audit committees, or auditors is illustrated with the high-profile corporate failures of Enron, and HIH Insurance in Australia.

Chapter 6 introduces forensic accounting. The perspective shifts from the *ex ante* prevention of conflict by corporate governance mechanisms to their *ex post* settlement by litigation, arbitration or disciplinary process. The chapter first describes the Australian environment for forensic accountants, and then discusses the different types of forensic services, distinguishing between reactive and proactive ones. Reactive services encompass traditional investigations in a conflicting situation, whereas proactive ones stand in a collaborative perspective (e.g. security consulting, valuation services in business negotiations, fraud prevention) and take a growing share of forensic departments' missions.

Chapter 7 reviews creative accounting techniques and related red flags that should be watched in an auditing perspective. Creative accounting, the use of accounting flexibility to provide misleading information in a compliant framework, involves a crucial ethical dilemma regarding the ethical decision-making hierarchy developed in Chapter 4. Therefore, although technically and practically insightful, this chapter would have benefited from further development of two notable aspects: the core ethical values and the quality attributes of financial reporting that are commonly breached by creative accountants; and the fact that academic research often documents relations between monitoring and/or audit-quality characteristics and financial-reporting quality, and specifically, earnings-management proxies.

Chapters 8 and 9 extend corporate accountability to the domains of social and environmental responsibilities. The argument first explains the shift of the ethical paradigm from purely utilitarianism to social justice and sustainability, and then presents social and environmental accounting as issues central to ethical decision making. Chapter 8 introduces the broad concept of social and environmental accountability as it applies to stakeholder theory, social legitimacy, and the political economy of organizations. The value relevance of corporate social/environmental disclosures is discussed in terms of partiality (only “good news” reported), finality (maximization of shareholder value?), and the risk that such information serves only propaganda or lobbying activities of corporations. Although “social audit” services developed by accounting firms are not specifically addressed, Chapter 8 describes common social accounting methods and reporting practices as a mix of

quantified (financial or not) and narrative information; the major resulting difficulty being that of benchmarking and comparing this social information across firms.

Chapter 9 introduces environmental issues by explaining the paradoxes between economic and environmental considerations. For example, when companies use free natural assets, the corresponding cost is not accounted for. Thus market competitiveness leads to spoiling environmental resources. In other words, business corporate equity differs from environmental ("intergenerational") fairness. This raises environmental ethical dilemmas and the concept of sustainability. The chapter then discusses the two antagonist approaches to preserve environmental assets: regulation (e.g., environmental laws and taxes) and market mechanisms (e.g., property rights or tradable pollution permits likely to enhance companies' responsibility in the use of natural assets.) Examples and limitations of both approaches are exposed, highlighting the potentially negative ethical consequences of pollution-permits mechanisms. The chapter ends by discussing the validity of different ethical judgments with respect to environmental issues, and by stressing the role of environmental reporting in ethical decision making.

Chapter 10 provides normative coverage of the key independence duty that applies to professional accountants. It builds on principal-agent theory to justify independent audits both in fact and in appearance, and then extensively refers to the Australian Joint Code of Professional Conduct and IFAC's code of ethics to present in detail the threats to independence (self-interest, self-review, familiarity, and intimidation) and related safeguards.

The final two chapters of this textbook address the conflicts of interests that accountants may face as external (Chapter 11) or salaried (Chapter 12) professionals. The approach remains largely normative. Chapter 11 deals with client-centered conflicts related to tax consulting, professional fees, and dismissal pressures. Chapter 12 focuses on employer-centered conflicts and related ethical dilemmas, with special attention to the problem of whistle blowing by employed accountants; a structured decision process for internal and external whistle blowing is proposed. The chapter then examines the role of cultural perspectives based on the idea that business ethics is markedly different across cultures, as illustrated by corruption and bribery indexes worldwide. In conclusion, the authors advocate the development of a strong, ethical, corporate culture, which relies on corporate codes of conduct and is supported by the "tone at the top," set by managers.

Students will find that this textbook provides a useful and comprehensive overview of major ethical issues. The writing is clear and accessible, and numerous examples make the presentation of ethical concepts quite attractive. One problem to note relates to the separation between Part 1 (ethics at the level of individuals) and Part 2 (ethics in a corporate/regulatory environment), when, in reality, the underlying issues may overlap. As a rule, the reader's progression through the book may not necessarily be straightforward. For instance, Chapter 10 on independence would be better placed after Chapter 3 which introduces codes of conduct; Chapters 11 and 12 are also strongly rooted in issues of individual ethical behavior by accountants. Since the book is aimed at future professional accountants, the dominantly normative approach and tone seem appropriate. Concerning the role of governance and auditing structures with respect to financial reporting quality surrogates (e.g. fraudulent reporting, restatements, earnings management), or the relations

between creative accounting and firm performance, brief allusions to the findings of positive empirical research would have been insightful.

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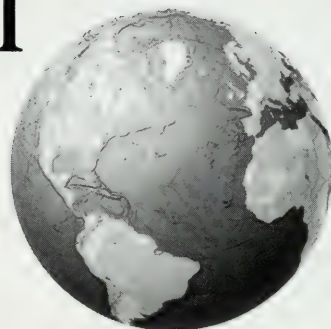
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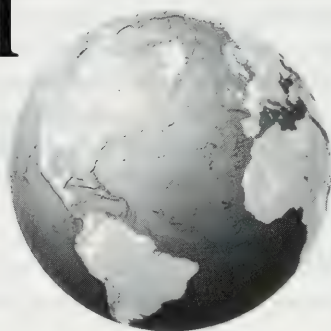
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Earnings attributes and investor-protection: International evidence[☆]

Kriengkrai Boonlert-U-Thai^{a,*}, Gary K. Meek^b, Sandeep Nabar^b

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Abstract

This study explores the effects of investor-protection on reported earnings quality assessed on the basis of four accounting-based earnings attributes (accruals quality, earnings persistence, earnings predictability, and earnings smoothness). We test the hypothesis that favorable values of each earnings attribute (considered individually) occur in countries whose institutional characteristics provide relatively strong investor-protection. The results based on K-means cluster analysis of institutional characteristics are mixed. Earnings smoothness is less prevalent in strong investor-protection countries, as hypothesized. However both accruals quality and earnings predictability are better in countries whose institutional characteristics are relatively weak. No association is found between investor-protection and earnings persistence, except that countries with low ownership concentration appear to have high earnings persistence. The results based on regression analysis are consistent with those based on the cluster analysis. These results imply that conclusions about the impact of institutional characteristics on earnings quality depend on how earnings quality is measured.

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Keywords: Earnings quality; Earnings attributes; Investor-protection; Accruals quality; Earnings persistence; Earnings predictability; Earnings smoothness

[☆] Data availability: the data used in this study are publicly available.

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1. Introduction

A major motivation for accounting research is providing evidence on the usefulness of earnings. Of particular interest in recent years has been the quality of accounting reports, particularly the quality of earnings. In September 1998 Arthur Levitt, then Chairman of the Securities and Exchange Commission (SEC), presented “The Numbers Game” at New York University, in which he highlighted the escalating problem with the quality of financial reporting in filings with the SEC. Accounting quality has also received a great deal of attention following a significant increase in the incidence of earnings restatements (GAO, 2003), several high-profile bankruptcy filings by firms accused of accounting irregularities (e.g., Worldcom and Enron), and the demise of Arthur Andersen.

Earnings quality is of major importance to users of financial information as well as to practitioners, regulators, and accounting researchers since earnings is widely believed to be the premier information item provided in financial statements (Lev, 1989). Schipper and Vincent (2003) contend that poor earnings quality is detrimental to investors and other financial statement users. Low-quality earnings can lead to a misallocation of capital and may also generate inappropriate outcomes for contracts that use accounting data as inputs.

Teets (2002) suggests that earnings quality is influenced by prevailing standards as well as by managers’ accounting choices. Since managerial discretion plays an important role in financial reporting, several international studies (e.g., Ali & Hwang, 2000; Ashbaugh & LaFond, 2003; Ball, Kothari, & Robin, 2000; DeFond, Hung, & Trezevant, 2004; Hung, 2001; Leuz, Nanda, & Wysocki, 2003) have examined whether differences in the properties of earnings across countries are associated with the legal protection afforded outside investors from expropriation by controlling shareholders or managers.

The extent of investor-protection varies greatly around the world. Shleifer and Vishny (1997) state that in some countries such as the United States, Japan, and Germany, the law protects the rights of at least some investors and the courts are relatively willing to enforce these laws. But even in these countries, the legal system leaves managers and controlling owners with considerable discretion to manage reported earnings in order to mask true firm performance and to conceal their private control benefits from outsiders. In most of the rest of the world, the extent of investor-protection is less and the judicial system works less well as courts consider only the clearest violations of investor rights. As a result, legal protection alone becomes insufficient and accounting information such as earnings cannot reflect “true” economic performance.

Previous research related to a linkage between investor-protection and earnings quality is relatively scarce. Most prior studies have focused on the effect of investor-protection on earnings management (Leuz et al., 2003), value relevance of earnings (Ali & Hwang, 2000; Hung, 2001), and informativeness of reported earnings (Ball et al., 2000). Leuz et al. (2003) find less earnings management in countries with stronger investor-protection. Bhattacharya, Daouk, and Welker (2003) find that an increase in overall earnings opacity in a country is linked to an increase in the cost of equity and a decrease in trading in the stock market of that country. Ali and Hwang (2000) document that earnings in the United States is more value relevant than earnings in other countries because of the differences in country-specific factors. Hung (2001) concludes that shareholder protection improves the effectiveness of accrual accounting. Ball et al. (2000) document that an important difference

between common-law and code-law countries is the manner of resolving information asymmetry between managers and potential users of accounting income, including debt and equity investors, employees, suppliers, and customers. These prior studies show the importance of an individual country's investor-protection on the quality of accounting information. However, they focus on one attribute of earnings such as smoothness or value relevance. This study extends prior research by exploring the effects of investor-protection on four accounting-based measures of earnings quality: accruals quality, earnings persistence, earnings predictability, and earnings smoothness.

We examine the hypothesis that favorable values of each earnings attribute (considered individually) occur in countries whose institutional characteristics provide relatively strong investor-protection. The results, based on K-means cluster analysis between institutional characteristics and earnings attributes, are mixed. Earnings smoothness appears to be less prevalent in countries whose institutional characteristics are strong. However, high accruals quality and high predictive ability of earnings are more likely to be found in countries whose institutional characteristics are weak. In addition, the results show no effect of differential institutional characteristics on earnings persistence, except that countries with low ownership concentration appear to have high earnings persistence. The results based on regression analysis are consistent with those based on the cluster analysis. Given the mixed results on the association between institutional characteristics and earnings attributes, it would appear that conclusions about earnings quality depend on how it is defined.

This study contributes to the accounting literature in the following ways. First, prior research has focused on cross-country differences in the properties of earnings (e.g., Alford, Jones, Leftwich, & Zmijewski, 1993; Ali & Hwang, 2000; Ball et al., 2000) using one aspect of earnings attributes. This study is one of the first to explore cross-country differences in the properties of reported earnings using four accounting-based earnings attributes to draw conclusions about earnings quality. Second, this study extends prior studies such as DeFond et al. (2004), Ashbaugh and LaFond (2003), Leuz et al. (2003), Bhattacharya et al. (2003), Hung (2001), Ball et al. (2000), and Ali and Hwang (2000) by investigating the effects of investor-protection on accounting-based earnings attributes and earnings quality. Finally, our findings have implications for security analysts, regulators, standard setters, and other accounting-information users in enhancing their understanding of legal institutional differences and their impact on the properties of reported earnings.

The remainder of this paper is organized as follows. Section 2 contains a discussion of measures of earnings-quality, and Section 3 describes the investor-protection proxies. Section 4 contains the research design, and Section 5 reports the empirical results. Section 6 summarizes and concludes the paper.

2. Measures of earnings quality

"Quality of earnings" is a multidimensional concept and there is no agreed-upon definition in the literature. Schipper and Vincent (2003) propose a number of earnings-quality constructs, including three derived from the time-series properties of earnings: persistence, predictive ability, and variability. In the empirical literature, studies such as Dechow and Dichev (2002) and Francis, LaFond, Olsson, and Schipper (2003), among others, use accruals quality to draw conclusions about earnings quality and view earnings to

be of higher quality if accruals quality is high. Dechow and Dichev (2002), Penman and Zhang (2002), and Richardson (2003) view earnings to be of higher quality when earnings are more persistent. Bricker, Previts, Robinson, and Young (1995) and Mikhail, Walther, and Willis (2003) define earnings quality as the extent to which a firm's past earnings is associated with its future cash flows, where high earnings quality occurs when a firm's earnings has high predictability. Some studies such as Lang, Raedy, and Yetman (2003) and Ball and Shivakumar (2004) view earnings to be of higher quality when earnings management is low and bad news is recognized in a timely fashion.

Based on this prior literature, this study uses the following earnings attributes as indicators of high earnings quality: (1) accruals quality, which refers to the extent to which accruals map into the related cash flow realization: when accruals shift or adjust the recognition of cash flows over time so that the adjusted earnings better measures firm performance and better predicts the future earnings and cash flows; (2) earnings persistence, which refers to the extent to which an innovation (unexpectedness) in the earnings series causes investors to revise their future earnings expectations; (3) earnings predictability, which refers to the ability of earnings to predict future earnings;¹ and (4) earnings smoothness, which refers to the use of accruals to smooth earnings: low smoothness means that a firm's management has not engaged in smoothing practices.²

2.1. Accruals quality

Several measures to assess earnings quality indicate that earnings which maps more closely into cash is more desirable (e.g., Francis, LaFond, Olsson, & Schipper, 2004; Harris, Huh, & Fairfield, 2000). The gap between earnings and cash is from accruals. One role of accruals is to shift or adjust the recognition of cash flows over time so that the adjusted numbers (earnings) better measure firm performance. However, accruals require assumptions and estimates of future cash flows. Thus, accruals are the product of judgments, estimates, and allocations. Dechow and Dichev (2002) (hereafter, DD) develop a measure of accruals quality and argue that the quality of accruals and earnings is decreasing in the magnitude of estimation error in accruals. The DD model uses firm-specific regressions of changes in working capital on last year, present, and one-year ahead cash flows from operations and defines accruals quality as a standard deviation of the residual from this firm-specific regression.

However, McNichols (2002) proposes a modified DD (2002) model, arguing that the changes in sales revenue and property, plant, and equipment are important in forming expectations about current accruals, over and above the effects of operating cash flows. She shows that applying variables from the modified Jones model (Dechow, Sloan, & Sweeney,

¹ Since earnings predictability refers to the ability of past earnings to predict future earnings (Lipe, 1990), it is linked to a specific task, and is a decreasing function of the variance of earnings innovations. Hence, there is a possible contradiction between the persistence and predictive ability of earnings (i.e., earnings that are of high quality on the persistence dimension may be of low quality on the predictive ability dimension).

² Management can engage in earnings smoothing practices by introducing transitory components to the income series in order to decrease time-series variability and increase earnings predictability (Schipper & Vincent, 2003). In addition, former SEC Chairman Arthur Levitt (1998) holds that managers smooth earnings because they believe investors prefer smoothly increasing earnings.

1995) into the cross-sectional DD model significantly increases its explanatory power and thus reduces measurement error. The accrual-estimation errors using a residual (ε_t) are measured from the following equation:

$$\begin{aligned} \frac{TCA_{j,t}}{\text{TotalAsset}_{j,t-1}} = & b_0 + b_1 * \frac{CFO_{j,t-1}}{\text{TotalAsset}_{j,t-1}} + b_2 * \frac{CFO_{j,t}}{\text{TotalAsset}_{j,t-1}} \\ & + b_3 * \frac{CFO_{j,t+1}}{\text{TotalAsset}_{j,t-1}} + b_4 * \frac{\Delta REV_{j,t}}{\text{TotalAsset}_{j,t-1}} \\ & + b_5 * \frac{PPE_{j,t}}{\text{TotalAsset}_{j,t-1}} + \varepsilon_{j,t} \end{aligned} \quad (1)$$

Where:

$TCA_{j,t}$ Firm j 's total current accruals in year t . ($\Delta CA_{j,t} - \Delta CL_{j,t} - \Delta \text{Cash}_{j,t} + \Delta \text{STDEBT}_{j,t} + \Delta \text{TP}_{j,t}$).

$\text{Total Asset}_{j,t-1}$ Firm j 's total assets in year $t-1$ (#G107).

$CFO_{j,t}$ Firm j 's cash flow from operations in year t . This CFO is calculated as net income before extraordinary items (#G378) less total accruals (TA).³

$\Delta REV_{j,t}$ Firm j 's change in total revenue between year $t-1$ and t .

$PPE_{j,t}$ Firm j 's property, plant, and equipment in year t (#G639).

$TA_{j,t}$ Firm j 's total accruals in year t . ($\Delta CA_{j,t} - \Delta CL_{j,t} - \Delta \text{Cash}_{j,t} + \Delta \text{STDEBT}_{j,t} + \Delta \text{TP}_{j,t} - \text{Dep}_{j,t}$).

$CA_{j,t}$ Firm j 's current assets in year t (#G638).

$CL_{j,t}$ Firm j 's current liabilities in year t (#G650).

$\text{Cash}_{j,t}$ Firm j 's cash in year t (#G628).

$\text{STDEBT}_{j,t}$ Firm j 's debt in current liabilities in year t (#G132).

$\text{TP}_{j,t}$ Firm j 's taxes payable in year t (#G161).

$\text{Dep}_{j,t}$ Firm j 's depreciation and amortization expenses in year t (#G399).

This study employs the modified DD model proposed by McNichols (2002) and assumes that uncertainty in accruals (proxied by the standard deviation of the residual) is best captured by this model. The measure of accruals quality is based on this standard deviation of estimated residual ($\sigma(\hat{\varepsilon}_{j,t})$, hereafter, *Stdresid*) from Eq. (1) as it refers to the extent to which working-capital accruals map into operating cash flow realizations. Large (small) values of *Stdresid* correspond to lower (higher) accruals quality and lower (higher) earnings quality.

³ Variable CFO is available as a data item for U.S. firms as it is required by SFAS No. 95, but not for all non-U.S. firms. Consistent with Leuz et al. (2003) and Bhattacharya et al. (2003), this study uses the indirect (balance sheet) approach to estimate accruals rather than the direct (statement of cash flows) approach. Although the indirect approach may suffer from measurement error in accruals, especially for firms with merger and acquisition activity or discontinued operations (Hribar and Collins, 2002), it allows for a larger sample of firms across countries than is possible in the direct approach. In fact, many of sample countries in this study do not require the preparation or presentation of a statement of cash flows.

2.2. Earnings persistence

Kormendi and Lipe (1987) use firm-level regressions of current earnings on last year's earnings to estimate the slope-coefficient estimates of earnings persistence. This study employs the measure in Kormendi and Lipe (1987) and uses the following equation:

$$\frac{\text{Earn}_{j,t}}{\text{TotalAssets}_{j,t-1}} = \alpha + \delta_1 * \frac{\text{Earn}_{j,t-1}}{\text{TotalAsset}_{j,t-1}} + V_{j,t} \tag{2}$$

Where:

$\text{Earn}_{j,t}$ Firm's j net income before extraordinary items in year t (#G378).
 $\text{Earn}_{j,t-1}$ Firm's j net income before extraordinary items in year $t-1$.

The measure capturing earnings persistence is based on the slope-coefficient estimate (δ_1 , hereafter, *Persist*) from Eq. (2). Values of δ_1 close to one (or greater than one) indicate highly persistent earnings while values close to zero imply highly transitory earnings. Persistent earnings are viewed as higher quality, while transitory earnings are viewed as lower quality.

2.3. Earnings predictability

Lipe (1990) provides a measure of earnings predictability as it is reflected in the variance of the earnings shocks (as variance increases, the predictability decreases). Francis et al. (2004) follow his study by measuring earnings predictability using the square root of the estimated error-variance from the earnings-persistence equation. In this study, earnings predictability is calculated using the square root of the error variance from Eq. (2). Predictability is:

$$\text{Pred}_{j,t} = \sqrt{\sigma^2(\hat{v}_{j,t})} \tag{3}$$

Where:

$\sigma^2(\hat{v}_{j,t})$ Estimated-error variance of firm j in year t , calculated from Eq. (2).

Large values of *Pred* imply less predictable earnings. More predictable earnings are viewed as higher quality, while less predictable earnings are viewed as lower quality.

2.4. Earnings smoothness

Wysocki (2004) suggests a measure of earnings quality using closeness-to-cash as a benchmark because it provides a direct benchmark for the absolute magnitude of "economic income." He states that while discretionary-accruals models control for firm and

industry characteristics, they fail to identify a benchmark for the underlying “economic income” that is being managed. Leuz et al. (2003) suggest a possible solution to this problem by introducing a closeness-to-cash benchmark for underlying “economic income” using absolute working-capital accruals as a measure of earnings management and then scaling this measure by absolute cash flow from operations. They also define earnings smoothness as the ratio of the firm-level standard deviations of operating income and operating cash flow (both scaled by lagged total assets). Bowen, Rajgopal, and Venkatachalam (2003) measure earnings smoothness as the standard deviation of operating cash flows divided by the standard deviation of earnings. Similarly, Francis et al. (2004) measure earnings smoothness as the ratio of standard deviation of net income before extraordinary items divided by beginning total assets to the standard deviation of cash flow from operations divided by beginning total assets. Since all these measures of smoothness are closely related, we adopt the one proposed by Bowen et al. (2003).

$$\text{Smooth}_{j,t} = \frac{\sigma(\text{CFO}_{j,t}/\text{TotalAssets}_{j,t-1})}{\sigma(\text{Earn}_{j,t}/\text{TotalAssets}_{j,t-1})} \quad (4)$$

Where:

σ Firm j 's standard deviation

$\text{CFO}_{j,t}$ Firm j 's operating cash flows in year t (indirect approach)

$\sigma(\text{Earn}_{j,t})$ Firm j 's net income before extraordinary items in year t (#G378).

Ratios in excess of one indicate more variability in operating cash flows relative to the variability of earnings, which implies the use of accruals to smooth earnings. Thus, large (small) values of *Smooth* indicate more (less) earnings smoothness and low (high) earnings quality.

3. Investor-protection

Investor-protection is defined as the protection of outside investors by the enforcement of regulations and laws (Shleifer & Wolfenzon, 2002) or as a key institutional factor affecting firm policy choices such as shareholder voting rights and financial system policies (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000; Shleifer & Vishny, 1997).

La Porta et al. (2000) indicate that protected shareholder rights include those to receive dividends on pro-rata terms, to vote for directors, to participate in shareholders' meetings, to subscribe to new issues of securities on the same terms as the insiders, to sue directors or the majority for suspected expropriation, and to call extraordinary shareholders' meetings. If there is no investor-protection, insiders can steal a firm's profits by manipulating accounting numbers. For example, insiders can use their financial reporting discretion to (1) overstate earnings and conceal unfavorable earnings realizations (i.e., losses) that would prompt outsider interference, and (2) understate earnings in years of good performance by creating reserves for future periods, effectively making reported earnings

less variable than the firm's true economic performance (Leuz et al., 2003).⁴ Hence, investors should understand the differences in laws and the effectiveness of investors' enforcement across countries in order to protect their rights and make sure that the returns on their investments will not be expropriated by the controlling shareholders or managers (La Porta et al., 2000).

This study employs eight institutional characteristics from La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1998), and La Porta, Lopez-De-Silanes, and Shleifer (2004) and defines them as investor-protection proxies: (1) antidirector rights, (2) efficiency of the judicial system, (3) rule of law, (4) corruption index, (5) ratio of the stock market capitalization held by minorities to gross domestic product, (6) ratio of the number of domestic firms to the population, (7) ratio of the number of initial public offerings of equity to the population, and (8) ownership concentration. La Porta et al. (1998) use proxies 2, 3, and 4 to measure the level of legal enforcement in different countries. Leuz et al. (2003) use proxies 5, 6, and 7 to proxy the importance of equity markets across countries. However, this study considers these proxies individually and uses them to characterize the sample countries into three distinct clusters using K-means cluster analysis. The following sections explain how prior research has characterized these eight proxies.

3.1. Antidirector rights

Following La Porta et al. (1998), this study defines the variable *InvRights* using an index aggregating shareholder rights. This index is formed by adding one when (1) the country allows shareholders to mail their proxy vote to the firm, (2) shareholders are not required to deposit their shares prior to the general shareholders' meeting, (3) cumulative voting or proportional representation of minorities in the board of directors is allowed, (4) an oppressed-minorities mechanism is in place, (5) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10% (the sample median), or (6) shareholders have preemptive rights that can be waived only by shareholders' vote. The index ranges from zero to six, with higher scores implying stronger antidirector rights and better investor-protection.

3.2. Law enforcement: efficiency of the judicial system

Based on La Porta et al. (1998, 2000, 2004), *JudicSys* is an index representing the average of investors' assessment of conditions of the judicial system in each country between 1980 and 1983. The index ranges from zero to 10, with higher scores implying greater legal enforcement and better investor-protection.

3.3. Law enforcement: rule of law

Based on Kaufmann, Kraay, and Mastruzzi (2004) and La Porta et al. (2004), *RuleofLaw* is an index representing the extent to which agents have confidence in and abide by the

⁴ The term "insiders" refers to both managers and controlling shareholders (La Porta et al., 2000).

rules of society in the year 2000. These include perceptions of the incidence of both violent and non violent crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts. This estimate ranges from -2.5 to 2.5 , with higher scores implying greater legal enforcement and better investor-protection.

3.4. Law enforcement: corruption index

Based on Kaufmann et al. (2004) and La Porta et al. (2004), *Corruption* is an index measuring the exercise of public power for private gain in year 2000. This index captures aspects ranging from the frequency of additional payments to get things done to the effects of corruption on the business environment. The index ranges from -2.5 to 2.5 , with higher scores implying greater legal enforcement and better investor-protection.

3.5. Importance of equity market: external cap/GDP ratio

Based on La Porta et al. (2004), *ExtCap*, (External Cap/GDP) ratio is the ratio of the stock market capitalization held by minorities to gross domestic product for the period of 1996 to 2000. The stock market capitalization held by minorities is computed as the product of the aggregate stock market capitalization and the average percentage of common shares not owned by the top three shareholders in the 10 largest nonfinancial, privately owned domestic firms in a given country. This study uses this ratio to measure the importance of the equity market in each country, with higher values indicating a greater importance of the stock market and better investor-protection.

3.6. Importance of equity market: domestic firms/pop ratio

Based on La Porta et al. (2004), *DoFirms* equals Domestic Firms/Pop ratio is the ratio of the number of domestic firms listed in a given country to its population (in millions) for the period of 1996–2000. Higher values indicate a greater importance of the stock market and better investor-protection.

3.7. Importance of equity market: IPOs/GDP ratio

Based on La Porta et al. (2004), *IPOs* equals IPOs/GDP ratio is the ratio of equity issued by newly listed firms in a given country (in thousands) to its gross domestic product (in millions) for the period of 1996–2000. Higher values indicate a greater importance of the stock market and better investor-protection.

3.8. Ownership concentration

Following La Porta et al. (2004), *Ownership* is ownership concentration measured as the average percentage of common shares owned by the top three shareholders in the 10 largest nonfinancial, privately owned domestic firms in a country. A firm is considered privately

owned if the State is not a known shareholder in it. Lower values of *Ownership* correspond to better investor-protection.

4. Research design

The accounting-and-investor-protection-variable definitions appear in Appendix A. This study examines whether investor-protection affects the earnings quality of firms around the world. The hypothesis, stated in its alternative form, is as follows:

H1. Firms in strong investor-protection countries have more favorable values of each earnings attribute than firms in weak investor-protection countries.

Table 1
Sample: firm-year observations

Country	Legal origin	1996	1997	1998	1999	2000	2001	2002	N	%
Australia	English	110	121	165	197	219	236	242	1290	
Canada	English	221	232	240	279	291	297	287	1847	
Hong Kong	English	43	46	81	86	90	98	99	543	
India	English	75	77	107	192	191	192	185	1019	
Malaysia	English	135	188	345	383	395	425	431	2302	
Singapore	English	95	98	145	183	227	269	285	1302	
South Africa	English	21	21	43	46	49	48	50	278	
Thailand	English	104	142	212	222	223	225	229	1357	
United Kingdom	English	284	380	458	483	522	546	557	3230	
USA	English	1530	1621	1685	1859	1895	1901	1889	12,380	
		2618	2926	3481	3930	4102	4237	4254	25,548	44.3%
Belgium	French	32	45	52	58	77	80	80	424	
Brazil	French	39	40	97	104	105	105	105	595	
Chile	French	17	19	78	79	80	80	80	433	
France	French	159	224	288	345	410	437	436	2299	
Greece	French	9	26	45	56	60	61	59	316	
Indonesia	French	59	88	136	153	161	171	184	952	
Italy	French	41	80	90	99	142	159	160	771	
Mexico	French	29	34	53	53	58	60	60	347	
Netherlands	French	64	95	99	106	124	129	129	746	
Philippines	French	17	29	90	93	90	92	94	505	
Spain	French	46	70	73	84	91	93	94	551	
		512	750	1101	1230	1398	1467	1481	7939	13.8%
Austria	German	23	34	38	41	46	50	49	281	
Germany	German	146	213	271	361	472	491	467	2421	
Japan	German	2109	2218	2295	2371	2442	2488	2538	16,461	
South Korea	German	14	15	74	99	154	189	203	748	
Switzerland	German	79	102	120	122	144	150	152	869	
Taiwan	German	23	52	142	152	163	182	195	909	
		2394	2634	2940	3146	3421	3550	3604	21,689	37.6%
Denmark	Scandinavian	31	49	54	66	84	85	87	456	
Finland	Scandinavian	29	48	59	76	89	95	95	491	
Norway	Scandinavian	33	46	68	81	98	100	101	527	
Sweden	Scandinavian	36	78	121	154	186	188	197	960	
		129	221	302	377	457	468	480	2434	4.2%

4.1. Data and sample selection

The study selects all firm-year observations in all countries that have the required financial data to estimate all empirical models. All data are from the Global Vantage Industry Research and Industry Active Files for the fiscal years 1994 to 2003. Since the computation of the accruals-quality measure requires lagged and future data, the sample period is reduced to the period 1996 to 2002. The sample is restricted to industrial firms and excludes all firms with SIC codes 6000–6999 and 9000–9999, as in Barth, Beaver, Hand, and Landsman (1999), and Leuz et al. (2003). This restriction also increases the homogeneity of the sample and improves comparability of the results across countries. The study begins with the 49 countries in La Porta et al.'s (1998) sample, and eliminates countries with fewer than 200 firm-year observations to compute each of the firm-level variables in the analysis. Finally, this study trims the top and bottom 1% of the sample with respect to change in total assets, total current accruals, and change in net income before extraordinary items, all scaled by lagged total assets. These restrictions result in a final sample of 57,610 firm-year observations drawn from 31 countries.

Table 1 shows all firm-year observations sorted by legal origin over the period. The first and second highest firm-year observations are from English and German legal-origin countries (44.3% and 37.6%, respectively). An inspection of specific countries indicates that nearly 55.7% of the sample consists of firm-year observations from the United Kingdom (3230 observations), Japan (16,461 observations), and the United States (12,380 observations).⁵

4.2. Methodology

4.2.1. K-means cluster analysis

This study takes the following steps to test hypothesis 1. First, countries are grouped by investor-protection levels using a K-means cluster analysis based on MacQueen (1967).⁶ Second, each of the four earnings attributes is measured for the companies in the sample using a pooled regression per country per year in order to get 217 country-year accounting observations, calculated from a product of 31 countries and 7 years. These 217 country-year earnings-attribute observations are then averaged by country. Then, this country-mean value is assigned to its investor-protection cluster. The study investigates the hypothesis that clusters with low levels of investor-protection should have relatively less favorable values of these attributes.⁷

⁵ When a study's tests are based on pooled firm-year observations, the dominance of these observations, as well as their strong correlation with code/common-law institutional distinctions, could affect a study's primary tests. However, this study should not be affected because the research design is based on pooled results of firm-year observations per country per year, consistent with most country-year investor-protection observations.

⁶ K-means clustering is one of the simplest unsupervised learning algorithms that solves the clustering problem by classifying a given data set into a certain number of clusters. The algorithm is composed of the following steps: (1) place K points into the space represented by the objects that are being clustered, (2) assign each object to the group that has the closest centroid, (3) recalculate the positions of the K centroids when all objects have been assigned, (4) repeat steps 2 and 3 until the centroids no longer move.

⁷ Less favorable values of the four earnings attributes are low accruals quality, low earnings persistence, less predictable earnings, and high earnings smoothness.

4.2.2. Regression analysis

This study uses regression analysis to examine the relation between each of the earnings attributes and investor-protection as follows:

$$\text{Rank(Earnings Attribute)}_{jt} = \alpha + \beta_1 \text{InvRights}_{ji} + \text{ControlVariable}_{ji} + \varepsilon_{jt} \quad (5.1)$$

$$\text{Rank(Earnings Attribute)}_{jt} = \alpha + \beta_1 \text{JudicSys}_{ji} + \text{ControlVariable}_{ji} + \varepsilon_{jt} \quad (5.2)$$

$$\text{Rank(Earnings Attribute)}_{jt} = \alpha + \beta_1 \text{RuleofLaw}_{ji} + \text{ControlVariable}_{ji} + \varepsilon_{jt} \quad (5.3)$$

$$\text{Rank(Earnings Attribute)}_{jt} = \alpha + \beta_1 \text{Corruption}_{ji} + \text{ControlVariable}_{ji} + \varepsilon_{jt} \quad (5.4)$$

$$\text{Rank(Earnings Attribute)}_{jt} = \alpha + \beta_1 \text{ExtCap}_{ji} + \text{ControlVariable}_{ji} + \varepsilon_{jt} \quad (5.5)$$

$$\text{Rank(Earnings Attribute)}_{jt} = \alpha + \beta_1 \text{DoFirms}_{ji} + \text{ControlVariable}_{ji} + \varepsilon_{jt} \quad (5.6)$$

$$\text{Rank(Earnings Attribute)}_{jt} = \alpha + \beta_1 \text{IPOs}_{ji} + \text{ControlVariable}_{ji} + \varepsilon_{jt} \quad (5.7)$$

$$\text{Rank(Earnings Attribute)}_{jt} = \alpha + \beta_1 \text{Ownership}_{ji} + \text{ControlVariable}_{ji} + \varepsilon_{jt} \quad (5.8)$$

Where:

Earnings attribute Stdresid, Persist, Pred, or Smooth

ControlVariable The country's public enforcement from La Porta et al. (2004). The variable is measured as the mean of four underlying indices: Supervisor Characteristics, Investigative Powers, Orders, and Criminals. The variable ranges between zero (weak public enforcement) and one (strong public enforcement).

The public-enforcement variable is included to control for the impact of public enforcement on earnings attributes. Bushman and Piotroski (2006) find that stronger public-enforcement aspects of securities law discourage “optimism” by slowing recognition of good news in earnings relative to firms in countries with weak public enforcement aspects. Thus, this study includes the public enforcement variable as a control variable for all equations.

Following Leuz et al. (2003), we rank-transform the earnings attributes. High values of *Persist* correspond to high earnings quality. By contrast, high values of *Stdresid*, *Pred*, and *Smooth* are indicative of poor earnings quality. To be consistent across the four attributes, we rank *Persist* in ascending order and the other three variables in descending order, so that high ranks imply high earnings quality. In the regression models, the coefficient β_1 captures the impact of an investor-protection variable on an earnings attribute. Since high-quality earnings are likely in strong investor-protection countries, we expect β_1 to be positive.

5. Empirical results

5.1. Sample means

This section provides sample means for both institutional characteristics and earnings attributes. Table 2 presents results for the institutional variables, and Table 3 provides descriptive statistics on the earnings-attributes variables.

Table 2, Panel A, provides mean institutional characteristics of each sample country for the period 1996 to 2002. Not surprisingly, the highest level of investor-protection can be found in developed countries including the United Kingdom, the United States, Australia, Sweden, Canada, Hong Kong, Singapore, and Norway.

Table 2, Panel B, presents correlations among the institutional variables. High values of the first seven institutional variables are indicative of strong investor-protection, and we expect these variables to be positively correlated. Also, high values of ownership concentration indicate weak protection, and hence we expect negative correlation between this variable and the others. The results reported in Table 2, Panel B, show that the correlation coefficients between institutional characteristics have the expected signs.

Table 3, Panel A, presents the average values of the main accounting variables used to calculate each of the earnings attributes, scaled by lagged total assets. Table 3, Panel B, provides means of the four earnings-attributes variables. We report means for both the raw and ranked variables. As discussed previously, the earnings-persistence measure is ranked in ascending order and the other three attributes are ranked in descending order, so that high ranks indicate high earnings quality.

Table 3, Panel C, presents correlation coefficients between earnings attributes. Again, the Pearson correlation coefficients are presented in the upper half and the Spearman-rank correlation coefficients are presented in the lower half. The prior research reviewed in Section 2 suggests that high values of *Persist* and low values of *Stdresid*, *Pred*, and *Smooth* are indicative of high earnings quality. However, the correlation matrix indicates that *Smooth* has an unexpected negative correlation with *Stdresid* and *Pred*. The impact of this unexpected result is discussed later in this section.

5.2. Cluster analysis

In this section, we first report results for the K-means cluster analysis of institutional variables. This is followed by an analysis of the earnings attributes for these clusters.

We use eight institutional variables to group sample countries with similar institutional characteristics. These proxies are standardized to z-scores and three distinct clusters are identified through a K-means cluster analysis. This approach is similar to that of Leuz et al. (2003), except that this study uses the most recent La Porta et al. data (2004) and does not include a disclosure index as disclosure is likely to be highly correlated with the earnings attributes. Table 4, Panel A, reports means of the investor-protection variables for each cluster and tests of differences between clusters. The first cluster is characterized by extensive outsider rights, strong legal enforcement, larger stock markets, and low ownership concentration. The second and third clusters are characterized by lower outsider rights, weaker legal enforcement, smaller stock markets, and higher ownership

Table 2
Investor-protection proxies by country

Panel A: Indices of institutional characteristics

Country	Antidirector rights	Efficiency of judicial system	Rule of law	Corruption index	External Cap/GDP	Domestic firms/pop	IPOs/GDP	Ownership concentration
Australia	4.00	10.00	2.00	2.05	0.63	66.43	6.49	0.28
Austria	2.00	9.50	2.10	1.93	0.07	12.18	1.71	0.58
Belgium	0.00	9.50	1.64	1.36	0.33	15.62	2.04	0.54
Brazil	3.00	5.75	-0.15	0.01	0.13	2.95	0.04	0.57
Canada	5.00	9.25	2.01	2.30	0.61	92.19	8.49	0.40
Chile	5.00	7.25	1.33	1.54	0.50	23.00	0.36	0.45
Denmark	2.00	10.00	1.97	2.36	0.31	43.71	1.29	0.45
Finland	3.00	10.00	2.13	2.54	0.93	25.78	3.45	0.37
France	3.00	8.00	1.49	1.46	0.49	13.29	2.56	0.34
Germany	1.00	9.00	1.91	1.72	0.26	10.65	3.67	0.48
Greece	2.00	7.00	0.75	0.80	0.25	26.67	12.41	0.67
Hong Kong	5.00	10.00	1.66	1.44	1.39	106.13	8.94	0.54
India	5.00	8.00	0.23	-0.21	0.19	5.98	0.74	0.40
Indonesia	2.00	2.50	-0.90	-1.09	0.12	1.37	1.58	0.58
Italy	1.00	6.75	0.94	0.89	0.19	4.75	5.06	0.58
Japan	4.00	10.00	1.82	1.38	0.59	19.55	2.39	0.18
Malaysia	4.00	9.00	0.55	0.18	0.78	33.02	5.09	0.54
Mexico	1.00	6.00	-0.37	-0.39	0.11	1.94	0.26	0.64
Netherlands	2.00	10.00	1.97	2.34	0.88	14.00	2.80	0.39
Norway	4.00	10.00	2.01	2.11	0.25	43.65	3.26	0.36
Philippines	3.00	4.75	-0.50	-0.49	0.28	2.97	1.69	0.57
Singapore	4.00	10.00	2.12	2.50	0.80	89.20	7.08	0.49
South Africa	5.00	6.00	0.30	0.50	0.78	15.11	0.63	0.52
South Korea	2.00	6.00	0.65	0.45	0.32	15.69	3.97	0.23
Spain	4.00	6.25	1.38	1.66	0.32	18.04	3.11	0.51
Sweden	3.00	10.00	1.98	2.48	0.90	30.40	12.05	0.28
Switzerland	2.00	10.00	2.22	2.22	1.44	33.10	6.98	0.41
Taiwan	3.00	6.75	0.87	0.72	0.83	21.24	9.60	0.18
Thailand	2.00	3.25	0.43	-0.34	0.18	6.69	0.96	0.47
United Kingdom	5.00	10.00	1.93	2.17	1.20	34.97	11.68	0.19
USA	5.00	10.00	1.92	1.77	1.18	28.93	5.54	0.20

Panel B: Correlation coefficients of country-year correlation matrix of institutional characteristics

Correlation coefficient ^a								
	InvRights	JudicSys	RuleofLaw	Corruption	ExtCap	DoFirms	IPOs	Ownership
InvRights								
JudicSys	0.229***	0.258***	0.106	0.164**	0.452***	0.479***	0.143**	-0.396***
RuleofLaw	0.149**	0.874***	0.858***	0.824***	0.634***	0.731***	0.416***	-0.494***
Corruption	0.176***	0.848***	0.965***	0.943***	0.507***	0.677***	0.414***	-0.420***
ExtCap	0.449***	0.556***	0.501***	0.503***	0.554***	0.671***	0.391***	-0.435***
DoFirms	0.458***	0.522***	0.505***	0.513***	0.496***	0.665***	0.483***	-0.561***
IPOs	0.126*	0.247***	0.251***	0.262***	0.361***	0.340***	0.512***	-0.416***
Ownership	-0.378***	-0.405***	-0.457***	-0.406***	-0.470***	-0.139**	-0.197***	-0.280***
N	217	217	217	217	217	217	217	217

^a Pearson correlation matrix is presented in the upper half and Spearman-rank correlation matrix is presented in the lower half. ***, **, * denote 1% significance, 5% significance, and 10% significance, respectively (two-tailed). Variables are defined in Appendix A.

Table 3
Sample country's mean accounting variables

Panel A: Main accounting variables (scaled by lagged total assets) used to calculate each earnings attribute											
Country	Legal origin	Legal tradition	N	EARN	EARN _{t-1}	CFO	CFO _{t-1}	CFO _{t+1}	TCA	ΔREV	PPE
Australia	English	CM	1290	-0.03	-0.05	0.01	-0.01	0.01	0.01	0.02	0.62
Austria	German	CD	281	0.02	0.01	0.06	0.06	0.07	0.02	0.10	0.86
Belgium	French	CD	424	0.03	0.02	0.07	0.07	0.08	0.02	0.14	0.74
Brazil	French	CD	595	0.02	0.02	0.05	0.04	0.07	0.02	0.11	0.87
Canada	English	CM	1847	-0.03	-0.03	0.03	0.02	0.03	0.01	0.12	0.92
Chile	French	CD	433	0.05	0.05	0.08	0.08	0.09	0.01	0.05	0.95
Denmark	Scandinavian	CD	456	0.03	0.02	0.05	0.05	0.08	0.03	0.13	0.69
Finland	Scandinavian	CD	491	0.05	0.05	0.08	0.09	0.09	0.03	0.19	0.67
France	French	CD	2299	0.03	0.03	0.06	0.06	0.07	0.02	0.17	0.46
Germany	German	CD	2421	-0.03	-0.01	0.01	0.04	0.00	0.05	0.20	0.70
Greece	French	CD	316	0.08	0.07	0.06	0.08	0.09	0.07	0.17	0.68
Hong Kong	English	CM	543	0.00	-0.02	0.03	0.02	0.02	0.00	-0.01	0.50
India	English	CM	1019	0.08	0.07	0.10	0.90	0.12	0.02	0.13	0.72
Indonesia	French	CD	952	0.00	-0.01	0.03	0.03	-0.03	0.01	0.19	0.69
Italy	French	CD	771	0.02	0.02	0.05	0.05	0.03	0.02	0.10	0.51
Japan	German	CD	16,461	0.02	0.01	0.03	0.03	0.03	0.01	0.04	0.65
Malaysia	English	CM	2302	0.02	0.02	0.05	0.05	0.05	0.01	0.03	0.64
Mexico	French	CD	347	0.06	0.05	0.09	0.09	0.10	0.01	0.15	0.90
Netherlands	French	CD	746	0.04	0.03	0.07	0.07	0.09	0.03	0.23	0.67
Norway	Scandinavian	CD	527	-0.02	-0.01	0.04	0.03	-0.04	0.01	0.17	0.62
Philippines	French	CD	505	-0.01	-0.03	0.02	0.01	0.04	0.01	0.07	0.74
Singapore	English	CM	1302	0.02	0.02	0.05	0.05	0.05	0.01	0.06	0.59
South Africa	English	CM	278	0.17	0.09	0.18	0.10	0.10	0.04	0.53	0.67
South Korea	German	CD	748	0.03	0.02	0.07	0.05	0.07	0.01	0.21	0.64
Spain	French	CD	551	0.05	0.05	0.08	0.08	0.10	0.02	0.20	0.81
Sweden	Scandinavian	CD	960	-0.06	-0.05	-0.01	-0.01	-0.04	0.02	0.21	0.48
Switzerland	German	CD	869	0.04	0.03	0.08	0.08	0.09	0.01	0.08	0.74
Taiwan	German	CD	909	0.05	0.04	0.07	0.07	0.09	0.02	0.12	0.63
Thailand	English	CM	1357	0.03	0.02	0.08	0.08	0.08	0.00	0.05	0.75
UK	English	CM	3230	0.01	0.01	0.06	0.06	0.05	0.01	0.12	0.63
USA	English	CM	12,380	-0.03	-0.02	0.02	0.02	-0.02	0.01	0.16	0.64

Panel B: Earnings attribute variables (raw and rank data) used in this study

Country	Legal origin	Legal tradition	Stdresid	Persist	Pred	Smooth	Rank(Stdresid)	Rank(Persist)	Rank(Pred)	Rank(Smooth)
Australia	English	CM	0.094	0.521	0.199	1.150	5.00	8.86	3.57	21.43
Austria	German	CD	0.051	0.578	0.073	1.507	22.43	11.71	19.71	12.86
Belgium	French	CD	0.059	0.603	0.081	1.415	17.29	13.29	16.71	13.00
Brazil	French	CD	0.040	0.789	0.058	1.352	25.86	15.43	21.71	14.14
Canada	English	CM	0.079	0.810	0.162	1.072	10.86	17.29	6.43	23.86
Chile	French	CD	0.034	0.919	0.051	1.433	28.71	19.86	25.86	12.43
Denmark	Scandinavian	CD	0.063	0.773	0.107	1.343	15.14	16.43	14.57	15.00
Finland	Scandinavian	CD	0.060	0.934	0.090	1.240	17.00	20.43	16.57	17.57
France	French	CD	0.061	0.841	0.071	1.350	16.00	18.86	19.43	13.57
Germany	German	CD	0.105	1.031	0.144	1.285	4.14	19.00	9.86	15.86
Greece	French	CD	0.054	0.850	0.066	2.226	20.14	19.43	23.14	6.14
Hong Kong	English	CM	0.078	0.361	0.197	1.108	9.00	6.57	5.71	23.57
India	English	CM	0.051	1.085	0.045	1.356	21.57	25.86	27.00	13.29
Indonesia	French	CD	0.103	0.779	0.125	1.315	4.00	14.43	12.71	16.43
Italy	French	CD	0.047	0.668	0.059	1.506	23.57	12.71	22.00	7.57
Japan	German	CD	0.031	0.787	0.032	1.450	29.57	17.14	30.57	9.00
Malaysia	English	CM	0.074	0.705	0.081	1.298	10.00	16.29	17.43	18.29
Mexico	French	CD	0.038	0.564	0.076	1.339	27.00	10.43	18.00	14.29
Netherlands	French	CD	0.072	1.150	0.121	1.161	11.86	22.14	16.14	19.86
Norway	Scandinavian	CD	0.090	0.649	0.313	1.061	7.71	10.86	3.29	23.14
Philippines	French	CD	0.071	0.683	0.112	1.862	14.71	13.57	11.71	19.57
Singapore	English	CM	0.065	0.738	0.074	1.392	13.43	14.71	17.71	13.00
South Africa	English	CM	0.068	0.414	0.128	1.608	15.14	9.43	9.86	12.57
South Korea	German	CD	0.061	0.736	0.081	2.363	18.00	15.86	18.71	9.43
Spain	French	CD	0.051	0.787	0.052	1.753	19.57	16.14	22.86	6.14
Sweden	Scandinavian	CD	0.081	0.916	0.166	1.186	8.57	18.71	9.43	21.14
Switzerland	German	CD	0.046	0.802	0.058	1.352	24.00	16.43	22.86	16.29
Taiwan	German	CD	0.049	0.894	0.061	1.246	21.43	20.43	21.00	17.43

(continued on next page)

Table 3 (continued)

Panel B: Earnings attribute variables (raw and rank data) used in this study

Country	Legal origin	Legal tradition	Stdresid	Persist	Pred	Smooth	Rank(Stdresid)	Rank(Persist)	Rank(Pred)	Rank(Smooth)
Thailand	English	CM	0.061	0.661	0.074	1.316	15.86	13.29	19.14	14.00
UK	English	CM	0.074	0.849	0.133	1.034	10.86	18.29	8.57	26.14
USA	English	CM	0.091	0.968	0.213	0.946	7.57	22.14	3.71	29.00

Panel C: Country-year correlation matrix of earnings attributes

Correlation coefficient [⌘]				
	Stdresid	Persist	Pred	Smooth
Stdresid				
Persist	0.042	0.202***	0.751***	−0.268***
Pred	0.851***	−0.141**	0.134**	−0.130**
Smooth	−0.461***	−0.037	−0.579***	−0.304***

Note: These earnings attribute variables are based on the average of a country's variables obtained from cross-section of data per country per year (1996–2002).

⌘ Pearson correlation matrix is presented in the upper half and Spearman-rank correlation matrix is presented in the lower half.

The number of observations is 217.

***, **, * denote 1% significance, 5% significance, and 10% significance, respectively (two-tailed).

Table 4
Institutional clusters

Panel A: mean values of institutional characteristics by cluster

Institutional variables	Cluster 1	Cluster 2	Cluster 3
-Antidirector rights	4.43	2.64	2.80
Tests of differences between clusters	C1 vs. C2***	C2 vs. C3	C1 vs. C3***
-Efficiency of judicial system	9.89	8.73	5.90
Tests of differences between clusters	C1 vs. C2***	C2 vs. C3***	C1 vs. C3***
-Rule of law	1.95	1.68	0.13
Tests of differences between clusters	C1 vs. C2***	C2 vs. C3***	C1 vs. C3***
-Corruption index	2.10	1.70	-0.01
Tests of differences between clusters	C1 vs. C2***	C2 vs. C3***	C1 vs. C3***
-External Cap/GDP ratio	0.96	0.54	0.30
Tests of differences between clusters	C1 vs. C2***	C2 vs. C3***	C1 vs. C3***
-Domestic firms/pop ratio	64.04	22.11	10.14
Tests of differences between clusters	C1 vs. C2***	C2 vs. C3***	C1 vs. C3***
-IPOs/GDP ratio	8.61	3.37	2.85
Tests of differences between clusters	C1 vs. C2***	C2 vs. C3	C1 vs. C3***
-Ownership concentration	0.34	0.39	0.55
Tests of differences between clusters	C1 vs. C2***	C2 vs. C3***	C1 vs. C3***
	Outsider features	↔	Insider features

Panel B: Cluster membership of countries (*sorted in alphabet order*)

Cluster 1	Cluster 2	Cluster 3
Australia (CM)	Austria (CD)	Brazil (CD)
Canada (CM)	Belgium (CD)	Greece (CD)
Hong Kong (CM)	Chile (CD)	India (CM)
Singapore (CM)	Denmark (CD)	Indonesia (CD)
Sweden (CD)	Finland (CD)	Italy (CD)
UK (CM)	France (CD)	Malaysia (CM)
USA (CM)	Germany (CD)	Mexico (CD)
	Japan (CD)	Philippines (CD)
	Netherlands (CD)	South Africa (CM)
	Norway (CD)	Thailand (CM)
	South Korea (CD)	
	Spain (CD)	
	Switzerland (CD)	
	Taiwan (CD)	

The table presents results from a k-means cluster analysis using three distinct clusters and eight investor-protection proxies from La Porta et al. (2004). See Table 1 for details. The investor-protection proxies are standardized to z-scores when this study performs a k-means cluster analysis. Panel A reports the means of the investor-protection variables by cluster. Panel B reports the cluster membership for the 31 sample countries based on the cluster analysis performed on the proxies in Panel A. CD (CM) indicates a code-law (common-law) tradition. Panel C reports a comparison of the cluster membership of countries in this study and that in Leuz et al. (2003). ***, **, * denote 1% significance, 5% significance, and 10% significance, respectively (two-tailed).

concentration. Thus, the first cluster is referred to as “outsider economies” and the other two clusters are referred to as “insider economies,” with the distinction that countries in the second cluster have significantly better legal enforcement, larger stock markets, and lower ownership concentration than those in the third cluster.

Table 5

Institutional clusters and earnings attributes

	Cluster 1	Cluster 2	Cluster 3
<i>Panel A: Mean accruals quality rank by investor-protection cluster [mean country ranks are presented in parentheses]</i>			
	Singapore (13.43)	Japan (29.57)	Mexico (27.00)
	UK (10.86)	Chile (28.71)	Brazil (25.86)
	Canada (10.86)	Switzerland (24.00)	Italy (23.57)
	Hong Kong (9.00)	Austria (22.43)	India (21.57)
	Sweden (8.57)	Taiwan (21.43)	Greece (20.14)
	USA (7.57)	Spain (19.57)	Thailand (15.86)
	Australia (5.00)	South Korea (18.00)	South Africa (15.14)
		Belgium (17.29)	Philippines (14.71)
		Finland (17.00)	Malaysia (10.00)
		France (16.00)	Indonesia (4.00)
		Denmark (15.14)	
		Netherlands (11.86)	
		Norway (7.71)	
		Germany (4.14)	
Mean-rank values	9.33	18.06 ^a	17.79 ^a
Cluster rank	3rd	1st	2nd
<i>Panel B: Mean earnings-persistence rank by investor-protection cluster [mean country ranks are presented in parentheses]</i>			
	USA (22.14)	Netherlands (22.14)	India (25.86)
	Sweden (18.71)	Finland (20.43)	Greece (19.43)
	UK (18.29)	Taiwan (20.43)	Malaysia (16.29)
	Canada (17.29)	Chile (19.86)	Brazil (15.43)
	Singapore (14.71)	Germany (19.00)	Indonesia (14.43)
	Australia (8.86)	France (18.86)	Philippines (13.57)
	Hong Kong (6.57)	Japan (17.14)	Thailand (13.29)
		Switzerland (16.43)	Italy (12.71)
		Denmark (16.43)	Mexico (10.43)
		Spain (16.14)	South Africa (9.43)
		South Korea (15.86)	
		Belgium (13.29)	
		Austria (11.71)	
		Norway (10.86)	
Mean-rank values	15.22	17.04	15.09
Cluster rank	3rd	1st	2nd
<i>Panel C: Mean earnings-predictability rank by investor-protection cluster [mean country ranks are presented in parentheses]</i>			
	Singapore (17.71)	Japan (30.57)	India (27.00)
	Sweden (9.43)	Chile (25.86)	Greece (23.14)
	UK (8.57)	Switzerland (22.86)	Italy (22.00)
	Canada (6.43)	Spain (22.86)	Brazil (21.71)
	Hong Kong (5.71)	Taiwan (21.00)	Thailand (19.14)
	USA (3.71)	Austria (19.71)	Mexico (18.00)
	Australia (3.57)	France (19.43)	Malaysia (17.43)
		South Korea (18.71)	Indonesia (12.71)

Table 5 (continued)

	Cluster 1	Cluster 2	Cluster 3
<i>Panel C: Mean earnings-predictability rank by investor-protection cluster [mean country ranks are presented in parentheses]</i>			
		Belgium (16.71)	Philippines (11.71)
		Finland (16.57)	South Africa (9.86)
		Netherlands (16.14)	
		Denmark (14.57)	
		Germany (9.86)	
		Norway (3.29)	
Mean-rank values	7.88	18.44 ^(a)	18.27 ^(a)
Cluster rank	3rd	1st	2nd
<i>Panel D: Mean earnings-smoothness rank by investor-protection cluster [mean country ranks are presented in parentheses]</i>			
	USA (29.00)	Norway (23.14)	Philippines (19.57)
	UK (26.14)	Netherlands (19.86)	Malaysia (18.29)
	Canada (23.86)	Taiwan (17.43)	Indonesia (16.43)
	Hong Kong (23.57)	Finland (17.57)	Mexico (14.29)
	Australia (21.43)	Switzerland (16.29)	Brazil (14.14)
	Sweden (21.14)	Germany (15.86)	Thailand (14.00)
	Singapore (13.00)	Denmark (15.00)	India (13.29)
		France (13.57)	South Africa (12.57)
		Belgium (13.00)	Italy (7.57)
		Austria (12.86)	Greece (6.14)
		Chile (12.43)	
		South Korea (9.43)	
		Japan (9.00)	
		Spain (6.14)	
Mean-rank values	22.59	14.40 ^(a)	13.63 ^(a)
Cluster rank	1st	2nd	3rd

The table presents mean values of four accounting-based earnings attributes across three distinct investor-protection clusters based on the cluster analysis reported in Table 4. Panels A–D report mean earnings attribute ranks for sample countries in each cluster. Mean rank for each country is the average of country year ranks for the country. Countries within each cluster are sorted by their ranks. For all earnings attributes, high ranks correspond to high earnings quality.

Note: @ indicates that Cluster 2 and Cluster 3 means are significantly different from the Cluster 1 mean at the 0.01 level. The difference between Cluster 2 and Cluster 3 means is not statistically significant (Panels A, C and D); The differences between cluster means are not statistically significant (Panel B).

Table 4, Panel B, presents cluster membership of the sample countries across the three clusters. Interestingly, all countries (except Sweden) in the first cluster are common law while all countries in the second cluster are code law. This is consistent with the existence of institutional complementarities found in most finance literature. The third cluster consists of both common-law and code-law countries. Malaysia and Thailand, whose standards derive from common-law sources (USA, UK, and IAS) are placed in the third cluster consistent with their poor financial-reporting quality documented by Ball et al. (2003).⁸

⁸ With a few exceptions (Malaysia, Norway, South Africa, South Korea, Spain, and Sweden), the cluster membership of countries in this study is similar to that obtained by Leuz et al. (2003). The difference between our results and those of Leuz et al. (2003) may reflect the development of countries' investor-protection levels.

Table 5, Panels A through D, presents mean values of the four ranked earnings attributes across the three investor-protection clusters identified in Table 4. In these panels, countries within each cluster are sorted by the mean-rank scores of the earnings attribute being presented. The results (not tabulated) are qualitatively similar when we use raw variables, rather than ranks. Table 5, Panel A, reports accruals-quality rankings. The countries with the highest accruals-quality rankings (Japan followed by Chile, Mexico, Brazil, Italy, Switzerland, India, and Austria) are members of Clusters 2 and 3. Several Cluster 1 countries (Australia, USA, Sweden, and Hong Kong) have among the lowest average-accruals-quality scores in the sample. The mean rank for Cluster 1 is significantly less than the mean ranks for both Clusters 2 and 3. The results contradict the hypothesis that investor-protection is positively associated with accruals quality.

Table 5, Panel B, provides earnings persistence scores for countries in each of the three clusters. India (Cluster 3) has the highest average-earnings-persistence rank of 25.86, followed by Netherlands, USA, Finland, Taiwan, Chile, Greece, and Sweden. Earnings quality in these countries is the highest, according to the persistence measure. Hong Kong (Cluster 1) has the lowest score of 6.57, followed by Australia, South Africa, Mexico, Norway, and Austria. The average cluster ranks are similar in magnitude and not significantly different from each other. Thus no conclusions can be drawn about how investor-protection affects earnings persistence.

Table 5, Panel C, presents the analysis of earnings-predictability rankings. Japan has the highest average-earnings-predictability score, followed by India, Chile, Greece, Switzerland, Spain, Italy, and Brazil. These countries, which have the highest earnings quality according to the predictability measure, are all members of Clusters 2 and 3. The countries from Cluster 1 are all ranked extremely low based on their earnings-predictability scores. The mean-rank score for Cluster 1 is significantly lower than those for Clusters 2 and 3. These results indicate that investor-protection is not positively associated with earnings predictability.

Table 5, Panel D, provides the rankings of earnings smoothness for the 31 sample countries by cluster. The United States has the highest mean-earnings-smoothness rank, and several other Cluster 1 countries (UK, Canada, Hong Kong, Australia, and Sweden) are near the top of the rankings. The countries with the lowest mean ranks – Greece, followed by Spain, Italy, Japan, South Korea, and Chile – are all members of Clusters 2 and 3. The mean Cluster 1 rank (22.59) is significantly higher than both the mean Cluster 2 (14.40) and the mean Cluster 3 (13.63) ranks. Moreover, the ordering of mean cluster ranks corresponds to the ordering of the clusters. Since high ranks correspond to low smoothness, our evidence implies that investor-protection is negatively associated with earnings smoothness.

5.3. Regression results

Table 6, Panels A through D, reports multiple regressions of the four ranked-earnings attributes on investor-protection. The results in Panel A indicate that accruals quality is negatively associated with judicial system ($p < .01$), rule of law ($p < .01$), corruption ($p < .01$), and the number of domestic firms ($p < .05$). The other institutional variables are insignificant.

Table 6
Country year regression analysis of earnings attributes and investor-protection proxies

Prediction	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<i>Panel A: The dependent variable is Rank(Stdresid), a measure of accruals quality</i>								
Intercept	21.543*** (14.14)	27.903*** (10.97)	24.898*** (15.77)	24.465*** (16.23)	22.920*** (16.42)	22.336*** (17.19)	22.469*** (16.85)	19.432*** (8.57)
InvRights	0.342 (.74)							
JudicSys		-0.696*** (-2.64)						
RuleofLaw			-1.922*** (-3.00)					
Corruption				-1.634*** (-2.98)				
ExitCap					-2.462 (-1.60)			
DoFirms						-0.050** (-2.22)		
IPOs							-0.134 (-1.30)	
Ownership								5.940 (1.45)
Pub_enf	-12.871*** (-4.90)	-12.250*** (-5.42)	-12.708*** (-5.62)	-12.561*** (-5.56)	-10.828*** (-4.54)	-9.670*** (-3.89)	-11.469*** (-4.96)	-11.694*** (-5.11)
F-value	13.8***	17.4***	18.7***	18.5***	15.0***	16.3***	14.5***	14.7***
Adj. R ²	10.6%	13.2%	14.1%	13.9%	11.4%	12.4%	11.1%	11.2%
N	217	217	217	217	217	217	217	217

(continued on next page)

Table 6 (continued)

	Prediction	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<i>Panel B: The dependent variable is Rank(Persist), a measure of earnings persistence</i>									
Intercept		15.186*** (9.40)	13.370*** (4.89)	14.937*** (8.75)	15.014*** (9.22)	15.440*** (10.38)	16.066*** (11.60)	15.509*** (10.96)	21.379*** (9.01)
InvRights	+	0.413 (.84)							
JudicSys	+		0.302 (1.06)						
RuleofLaw	+			0.651 (.95)					
Corruption	+				0.602 (1.02)				
ExtCap	+					1.346 (.82)			
DoFirms	+						-0.042* (-1.78)		
IPOs	+							0.141 (1.29)	
Ownership	-								-12.168*** (-2.83)
Pub.enf	+	-0.905 (-.32)	0.375 (.15)	0.500 (.20)	0.469 (.19)	0.366 (-.14)	2.156 (.81)	-0.249 (-.10)	-0.241 (-.10)
F-value		0.4	0.6	0.5	0.5	0.3	1.6	0.8	4.0**
Adj. R ²		-0.6%	-0.4%	-0.5%	-0.5%	-0.6%	0.5%	-0.2%	2.7%
N		217	217	217	217	217	217	217	217

Panel C: The dependent variable is *Rank(Pred)*, a measure of earnings predictability

Intercept	22.196*** (14.44)	29.274*** (11.54)	24.833*** (15.68)	24.699*** (16.46)	22.915*** (16.41)	22.005*** (17.12)	22.099*** (16.46)	18.630*** (8.15)
InvRights	+ -0.331 -(.71)							
JudicSys	+ -0.918*** -(3.49)							
RuleofLaw	+ -2.207*** -(3.46)							
Corruption	+ -2.129*** -(3.90)							
ExtCap	+ -3.908*** -(2.54)							
DoFirms	+ -0.083*** -(3.75)							
IPOs	+ -0.175* -(1.68)							
Ownership	- 6.659 (1.61)							
Pub_enf	+ -10.083*** -(3.80)	-11.423*** -(5.06)	-11.893*** -(5.24)	-11.823*** -(5.26)	-9.252*** -(3.88)	-7.235*** -(2.94)	-10.398*** -(4.46)	-10.736*** -(4.65)
F-value	11.5***	18.0***	17.9***	19.7***	14.8***	19.0***	12.8***	12.7***
Adj R ²	8.9%	13.6%	13.5%	14.7%	11.4%	14.3%	9.9%	9.8%
N	217	217	217	217	217	217	217	217

(continued on next page)

Table 6 (continued)

Prediction	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<i>Panel D: The dependent variable is Rank(Smooth), a measure of earnings smoothness</i>								
Intercept	8.596*** (5.68)	0.485 (.20)	6.668*** (4.26)	7.154*** (4.78)	7.797*** (5.79)	9.622*** (7.41)	9.490*** (7.12)	16.515*** (7.48)
InvRights	0.744 (1.61)							
JudicSys		1.125*** (4.39)						
RuleofLaw			2.196*** (3.48)					
Corruption				1.874*** (3.44)				
ExtCap					6.279*** (4.24)			
DoFirms						0.051** (2.27)		
IPOs							0.135 (1.31)	
Ownership	-							-14.755*** (-3.69)
Pub.enf	9.946*** (3.81)	12.523*** (5.69)	12.892*** (5.74)	12.728*** (5.68)	9.196*** (4.0)	9.700*** (3.91)	11.536*** (4.99)	11.423*** (5.12)
F-value	15.2***	24.6***	20.5***	20.4***	23.8***	16.6***	14.7***	21.4***
Adj. R ²	11.6%	17.9%	15.3%	15.2%	17.4%	12.6%	11.2%	15.9%
N	217	217	217	217	217	217	217	217

T-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively (two-tailed).

Table 6, Panel B, reports multiple regressions with earnings-persistence rank as the dependent variable. The results indicate that earnings persistence is not associated with most institutional variables. The coefficient on ownership concentration is negative and significant ($p < .01$). This suggests that high levels of ownership concentration adversely affect earnings quality, as measured by earnings persistence.

Table 6, Panel C, reports the results for regressions of earnings-predictability ranks on the institutional variables. These results indicate that earnings predictability is negatively associated with judicial system ($p < .01$), rule of law ($p < .01$), corruption ($p < .01$), external capitalization ($p < .05$), the number of domestic firms ($p < .05$), and the number of IPOs ($p < .10$). This suggests that earnings predictability is high in low investor-protection countries, and contradicts the hypothesis that earnings quality, as measured by earnings predictability, is positively associated with investor-protection.

Table 6, Panel D, reports regression results for earnings smoothness. Earnings-smoothness rank is positively associated with judicial system ($p < .01$), rule of law ($p < .01$), corruption ($p < .01$), external capitalization ($p < .01$), and the number of domestic firms ($p < .05$), and negatively associated with ownership concentration ($p < .01$). Since higher ranks correspond to less smoothness, our results confirm that managers are less likely to smooth earnings in countries with relatively strong investor-protection.

5.4. Sensitivity tests

Our results are robust across the following alternative specifications: (1) using rank-transformed, rather than raw, investor-protection variables; (2) scaling the accounting variables by average, rather than lagged, total assets; (3) excluding change in taxes payable in the computation of accruals; and (4) using the Wysocki (2005) accruals model to measure accruals quality.

6. Summary and conclusions

This study explores the relationship between four measures of earnings quality and investor-protection, hypothesizing that favorable values of each earnings attribute (considered individually) occur in countries whose institutional characteristics provide relatively strong investor-protection. The results, based on K-means cluster analysis between institutional characteristics and earnings attributes, are mixed. When earnings quality is measured based on earnings smoothness, the results are consistent with the study's hypothesis since earnings is less smooth in countries whose institutional characteristics are strong. The results for accruals quality and earnings predictability are, however, inconsistent with the hypothesis, since countries with strong investor-protection have less favorable values of these measures than weak investor-protection countries. Finally, no relationship is evident between investor-protection and earnings persistence. Thus no clear conclusions can be drawn about how investor-protection affects earnings quality. The regression results are similar to those of the cluster analysis.

There are several possible reasons for the mixed results obtained here. Although the earnings attributes have been widely used in empirical studies of U.S. data, they may not be well-specified when applied to international data. Second, variation in firm size and

industry membership across countries may lead to substantially different incentives and opportunities for earnings management in these countries. Finally, factors other than investor-protection may influence earnings quality. One such factor is the extent to which stakeholders rely on accounting reports in their decision making. Accounting numbers are extensively used for contracting in the developed countries, and managers have more to gain through earnings management. This contracting role of accounting numbers may explain why earnings quality, measured by accruals quality and earnings predictability, appears to be relatively low in the developed nations.

The findings of this study provide some, though limited, insights into cross-country differences in earnings attributes and the linkage between these earnings attributes and the protection of investors' rights. One important implication of our study is that conclusions about earnings quality depend critically on how earnings quality is defined. Another possible implication is that factors other than investor-protection may significantly influence the characteristics of international accounting data. Thus investors and other financial-information users should not assume that a country's investor-protection features necessarily signal the reliability of accounting reports issued by its firms. Finally, our results suggest that commonly-used earnings attributes such as accruals quality and earnings persistence may not convey earnings quality in an international context. Future research that develops globally appropriate earnings-quality measures is necessary.

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Appendix A. Variable definitions

A.1. Accounting variable definitions

Stdresid = Accruals quality; the standard deviation of the estimated residuals from pooled firm-year regressions per country and year of changes in working capital on last year, present, and one-year ahead cash flows from operations.

$$\frac{TCA_t}{TotalAsset_{t-1}} = b_0 + b_1 * \frac{CFO_{t-1}}{TotalAsset_{t-1}} + b_2 * \frac{CFO_t}{TotalAsset_{t-1}} + b_3 * \frac{CFO_{t+1}}{TotalAsset_{t-1}} + b_4 * \frac{\Delta REV_t}{TotalAsset_{t-1}} + b_5 * \frac{PPE_t}{TotalAsset_{t-1}} + \varepsilon_t \quad (1)$$

Persist = Earnings persistence; the slope-coefficient estimates from pooled firm-year regressions per country and year of current earnings on last year earnings.

$$\frac{\text{Earn}_t}{\text{TotalAssets}_{t-1}} = \alpha + \delta_1 * \frac{\text{Earn}_{t-1}}{\text{TotalAsset}_{t-1}} + v_t \quad (2)$$

Pred = Earnings predictability; the square root of the error variance from the earnings-persistence equation.

$$\text{Pred}_{j,t} = \sqrt{\sigma^2(v_1)_t} \quad (3)$$

Smooth = Earnings smoothness; the ratio of the country-year standard deviation of operating cash flows to the standard deviation of earnings.

$$\text{Smooth}_{j,t} = \frac{\sigma(\text{CFO}_{j,t}/\text{TotalAsset}_{j,t-1})}{\sigma(\text{Earn}_{j,t}/\text{TotalAsset}_{j,t-1})} \quad (4)$$

A.2. Investor-protection variable definitions

InvRights The antidirector rights index constructed by La Porta et al. (1998). This index is formed by adding one when (1) the country allows shareholders to mail their proxy vote to the firm, (2) shareholders are not required to deposit their shares prior to the general shareholders' meeting, (3) cumulative voting or proportional representation of minorities in the board of directors is allowed, (4) an oppressed-minorities mechanism is in place, (5) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10% (the sample median), or (6) shareholders have preemptive rights that can be waived only by a shareholders' vote. The index ranges from zero to six, with higher scores for stronger shareholder rights.

JudicSys Efficiency of the judicial system from La Porta et al. (1998). Investors' assessment of conditions of the country's judicial system between 1980 and 1983. Index ranges from zero to 10 with higher scores implying greater law enforcement.

RuleofLaw The extent to which agents have confidence in and abide by the rules of society in year 2000. These include perceptions of the incidence of both violent and non-violent crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts, with higher scores implying greater law enforcement. Source: Kaufmann et al. (2004).

Corruption Index measuring the exercise of public power for private gain in the year 2000. It captures aspects ranging from the frequency of additional payments to get things done to the effects of corruption on the business environment, with higher scores implying greater law enforcement. Source: Kaufmann et al. (2004).

ExtCap External Cap/GDP ratio. The average ratio of stock market capitalization held by small shareholders to gross domestic product for the period 1996–2000. This ratio

is based on La Porta et al. (2004) and used to measure the importance of the equity market in each country, with the higher values indicating the greater importance of the stock market.

DoFirms Domestic Firms/Pop ratio is the ratio of the number of domestic firms listed in a given country to its population (in millions) for the period 1996–2000. This ratio is based on La Porta et al. (2004) and used to measure the importance of the equity market in each country, with the higher values indicating the greater importance of the stock market. Source: International Finance Corporation: Emerging Markets Database (2001) and World Bank (2001).

IPOs IPOs/GDP ratio is the ratio of the equity issued by newly-listed firms in a given country (in thousands) to its gross domestic product (in millions) for the period of 1996–2000. This ratio is based on La Porta et al. (2004) and used to measure the importance of the equity market in each country, with the higher values indicating the greater importance of the stock market. Source: Securities Data Corporation, World Bank (2001).

Ownership The ownership concentration is measured as the average percentage of common shares owned by the top three shareholders in the 10 largest nonfinancial, privately-owned domestic firms in a given country. A firm is considered privately owned if the State is not a known shareholder in it. This variable is based on La Porta et al. (2004) and measures legal protection, with higher values indicative of poor legal protection. Source: La Porta, Lopez-de-Silanes, and Shleifer (1999), Hartland-Peel (1996) for Kenya, Bloomberg and various annual reports for Ecuador, Jordan, and Uruguay.

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Discussion

Discussion of earnings attributes and investor protection: International evidence

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1. Introduction

In this paper, Boonlert-U-Thai, Meek, and Nabar (BMN) attempt to draw a connection between earnings quality and investor protection. It considers four different measures of earnings-quality attributes and eight measures of investor protection. The earnings-quality measures used are accruals quality, earnings persistence, earnings predictability, and earnings smoothness. The investor protection variables are anti-director rights, efficiency of judicial system, rule of law, corruption index, importance of equity market (external/minority capital/GDP ratio), importance of equity market (number of domestic firms/country's population), importance of equity market (IPOs/GDP ratio), and ownership concentration of the 10 largest firms in the country.

The results of the paper show that earnings smoothness is less prevalent in strong investor-protection countries. However, both accruals quality and earnings predictability are better in countries when investor-protection arrangements are relatively weak. No association is found between investor protection and earnings persistence, except that countries with low ownership concentration appear to have high earnings persistence. The implication that the authors draw from the results is that the impact of institutional characteristics relating to investor protection on earnings quality depends on how earnings quality is measured. On the whole, the paper lays down a framework for further research into the relation between earnings quality and the institutional characteristics that promote

or hinder investor protection. In this regard, Bushman and Smith (2001) propose that cross-country research is necessary to investigate the relation between accounting information and corporate governance arrangements.

In this review, I first identify the significant contributions of this paper and then move to critique it. This critique is designed more for aiding future research than to change the current paper. For the critique, I take the following steps. I raise some questions regarding how the paper deals with certain key issues. I assess the paper using these questions. In my assessments, I make suggestions for future research. I conclude with a summary of my discussion.

2. Contributions

BMN attempt to empirically examine the connection between earnings-quality attributes and investor-protection arrangements at a cross-country level. This endeavour is timely, as it can provide useful information for policy makers in assessing whether or not global accounting standards alone will be sufficient for harmonizing accounting practices around the world. Ball, Robin, and Wu (2003) through their study on East Asian countries, note that the dichotomous legal-origins variable (common vs. code law) has limited capacity to explain the variations in the quality of accounting information across countries. They suggest that researchers should look beyond the legal environment and accounting standards to identify the institutional determinants of financial accounting information quality. They also feel that it is incomplete and misleading to classify countries in terms of their accounting standards, or even their standard-setting arrangements, without giving substantial weight to the institutional and firm specific influences that affect preparers' incentives. Similar concerns are expressed by Rahman, Perera, and Ganesh (2002) who find that although regulatory similarities did bring accounting practices closer, there are firm-specific impediments that keep the accounting practices of countries from converging fully. In addition, they find that differences in country business and economic environment and policies also hinder convergence. Although investor protection is one of many issues that the previous papers identified as important for policy making, it is perhaps the most important issue that affects the investment climate in the emerging markets of the world. Without adequate investor protection, as BMN acknowledge, there would be little appreciation for the need for good quality accounting information. For example, if the judicial system does not recognize accounting information for legal decisions then both the preparers and users of financial accounting information will not regard quality of accounting information as an important matter for business decisions. This would lead to a decline in the supply of such information. In this regard, I commend the authors for bringing up the issue of relating accounting quality *vis-à-vis* earnings-quality attributes with investor-protection mechanisms.

In terms of methodological contribution, the authors have provided an empirical research framework, and identified well-accepted accounting-based earnings-quality measures and investor protection measures from the extant literature for use in their framework. They also have meticulously computed the earnings-quality measures and investor-protection measures. The authors' efforts in identifying and computing several measures of earnings quality to add robustness to their results is noteworthy. First, the

authors had to search a reasonably extensive literature on earnings quality to identify and justify the selection of the earnings-quality measures. Second, each of the earnings-quality measures required careful and painstaking computations. A sample size of 31 countries meant that these computations had to be repeated many times.

Overall, this paper makes two important contributions. First, it has identified an important issue for further research, that of considering investor-protection mechanisms that affect the quality of accounting in a country. With the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) continuing to align their standards, and the EU and many non-EU countries adopting the International Financial Reporting Standards (IFRS) in recent years, it is logical to proceed towards investigating other variables that act as impediments to global harmonization of accounting practices.

Second, this paper acts as a guide for future research for developing methodologies to investigate the relation between investor protection and accounting quality at an international level. The previous accounting literature examines this issue in detail only at the single-country level, mostly by examining issues such as audit quality, board governance, and usefulness of specific accounting standards. At the international level only broad measures have been taken to deal with this matter. For example, Morck, Yeung, and Yu (2000), after finding certain regularities in stock-price synchronicity in certain countries, contended that stock prices in countries with strong investor-protection arrangements move more with firm specific information and prices in weak investor protection countries move more with macroeconomic information. Others have focused on the effect of specific investor-protection mechanisms on specific earnings-quality issues e.g., earnings management (Leuz, Nanda, & Wysocki, 2003), value relevance of earnings (Ali and Hwang, 2000; Hung, 2001), and informativeness of reported earnings (Ball, Kothari, & Robin, 2000). This study extends prior research by exploring the effects of eight investor-protection mechanisms on four accounting-based measures of earnings quality.

I feel that the steps taken by BMN lay the foundation for future research in the area of accounting-information quality and investor protection on a cross-country basis. In this regard, it provides a useful framework for further research. BMN also provide intuitive ideas for the selection of earnings quality and investor-protection proxies for international accounting research, using proxies used in single-country studies.

3. Critique

In this section, I identify some key issues by raising questions such that we can critically appreciate what has been done in this paper. I then recommend ways and means of extending the contributions of this paper in future research. I attempt to highlight the issue that future research should proceed to appreciate the meaning of specific proxies chosen in this research and examine the relation between these proxies in greater detail. I argue that these proxies tend to portray different facets of the two main variables, and these proxies may relate to each other in different ways based on what they represent. We may, of course, contend that many of the specific proxies have already been examined in single-country contexts. Yet, I would argue that as accounting standards are becoming global it requires researchers to understand the implications of the single-country research results in multi-countries contexts. Such

research is needed because of the investor protection and other institutional idiosyncrasies of the countries using those standards. This is important especially in the emerging markets where institutional weaknesses cause serious stock market uncertainties such as that of the Asian financial crisis. A point to note is that some of the single-country variables, such as ownership structure of firms, may relate differently with the accounting numbers across countries because of the institutional and business-arrangement variations in those countries.

The questions I ask for my critique and, my discussion for these questions are below:

1. Does this study have a clear purpose?

The objective of the paper is stated in the abstract in the following manner: “This study explores the effects of investor protection on reported earnings quality assessed on the basis of four accounting-based earnings attributes (accruals quality, earnings persistence, earnings predictability, and earnings smoothness).” Although the general thrust of the paper is appreciable, this objective is quite broad for a specific empirical piece. It attempts to draw a connection between two very complex variables without looking into the essence and characteristics of these variables. It also suggests a very broad form of research, that of “exploring” the effects of one variable on another. A point that this paper overlooks is that the dependent variables chosen, attributes of quality of earnings, are firm-specific proxies of earnings quality, whereas the independent variables chosen are a mix of country, market, and firm-specific variables. This reduces the explanatory power of variables that vary across firms. It is advisable that future research use firm-level data to measure firm-level investor-protection measures and country-and market-level data to measure country institutional-and business-practices differences. Also, some of the independent variables could be interdependent or competing to provide investor protection.

The current paper has a very broad focus in terms of laying down the scope of the study. It has a “catch-all” type approach. Since different proxies may possess different features of the underlying variable, future studies should attempt to focus on specific proxies based on what they represent for their respective variables. Such focus is also important for pinpointing problems regarding issues, such as contradictory results, that need to be further resolved.

2. Is the motivation for the paper strong enough?

There seems to be no research question or problem identified in the paper to suggest that there is a need for this study. However, my reading of the literature on investor protection and accounting makes me believe that there is a need for this type of study. Also, with the rapid convergence towards a set of global accounting standards, there is a need for examining other forms of impediments that the accounting profession may face while converging the accounting practices of firms of different countries. Securities analysts would also like to ensure that once accounting standards are very similar they would be getting accounting numbers that are similar in meaning for firms across different countries. I suggest that future research should identify the need for examining the relation between accounting numbers and investor-protection variables that vary across countries.

3. Have the authors chosen a clear line of thinking or a theory to explain their views?

The absence of a research problem or a primary research question in the paper has led to an absence of a clear line of thinking or a theory to explain the relationships between the various proxies of the two variables, accounting earnings quality and investor protection. The authors have assessed the literature and have argued that a relation exists between the two variables; however, they stop short of identifying the strand of research to which they

are contributing. The general area of research within which their study is located is corporate governance. Corporate-governance literature has two strands: one sees corporate governance as guiding and improving the performance of managers (Fama & Jensen, 1983; Hart, 1995) and the other regards it as fulfilling an investor-protection function (Shleifer & Vishny, 1997). From BMN's literature review, I would place their paper in the second strand. They could have used the literature in this strand to explain how each or some of the investor-protection proxies relate to the different attributes of earnings. This would allow them to draw clear hypotheses for each of the relationships they have examined.

Without a theory for why relationships between earnings quality and investor protection exists, it is hard to draw clear causal links between the different proxies of investor protection and earnings quality. The blanket use of several investor-protection proxies and various proxies of earnings quality (i.e., earnings attributes) does not necessarily convey meaningful answers for the nature of the relationship between these proxies or the two variables. Without a clear *a priori* reasoning, causality between the dependent and independent variables can only be conjectured and not hypothesized. Also, the statistical measures provided can at best serve as measures of association, and at times it is hard to tell what those associations mean. Having made this remark, I believe that with the variety of aspects of investor protection and earnings quality that have been identified in the literature, it is difficult to place arguments for each of the proxies and test their relationships in a single paper. Once again, I would like to point out that this paper has highlighted the need for such tests and the identification of proxies of the two variables from the extant literature. In that sense, it has opened up a process for further research on the relationship between investor protection and earnings quality. As mentioned in the introduction to the paper, the authors are only "exploring" the relationships. Future research can expose further details of these relationships and also provide coherent explanations for the relationships. The authors also suggest that the purpose of this study is to examine the "linkage" between investor protection and reported earnings quality. The term "linkage" and "explore" leave sufficient room for further investigation by other researchers.

Clear theoretical frameworks will also allow the researchers to evaluate which of the corporate-governance variables *vis-à-vis* investor-protection variables would have a direct impact on accounting quality and which of them would act as catalysts or mitigating variables. For example, corporate-governance variables such as quality of auditor at the firm level or a strong accounting regulatory system at the country level have direct influences on the quality of accounting earnings of firms, whereas, independent directors on the board at the firm level and an effective litigation mechanism at the country level would act as indirect mitigating variables as they would mainly influence the more accounting-related variables, such as quality of auditor, in promoting good quality accounting.

4. Have the hypotheses been reasonably motivated?

The paper has only one hypothesis: "Firms in strong investor-protection countries have more favorable values of each earnings attribute than firms in weak investor-protection countries." It suggests that the authors are hypothesizing the same association between all the earnings-quality proxies on the one side and all the investor protection proxies on the other side. Given the complexities of the variables, earnings quality and investor protection, this hypothesis can be regarded as a conjecture rather than a hypothesis. However, within the main thrust of this study, i.e., the study being an exploration, this hypothesis could be

regarded as a starting point for further research. Future research should focus developing or adopting a theory for this strand of research and focus on the specifics of the relationships. This would lead to developing specific hypotheses for specific relationships between different aspects of investor protection and accounting earnings quality.

With clarity of thought it will be easier to understand the results of future research. Also, explanations could be clearly drawn for unsubstantiated hypotheses. In specifying detailed hypotheses, the authors will have to review single-country research in specific areas of accounting such as audit quality and earnings management. Also, researchers would have to explain what other mitigating or intervening factors would affect the links that exist at the firm level. For example, at the firm level certain characteristics of auditing may reduce discretionary accruals in a strong investor-protection country, but the same relationship may not exist in weak investor-protection countries. Why such varying behaviors exist in different countries would have to be explained through *a priori* arguments before setting up the hypotheses.

Although in this paper the authors do not provide detailed hypotheses, it is noticeable through their eight research models that they do appreciate that there may be proxy-specific linkages between earnings quality and investor protection.

5. Is there a coherent research model that addresses the hypotheses?

The paper proposes eight research models based on eight proxies of investor protection. When multiplied by the number of proxies of earnings quality (four in total), the number of models is in fact 32. Without sufficient discussion on the efficacy of the investor-protection proxies in promoting earnings quality, it is difficult to assess what the results of these models will indicate. Overall, the authors contend that earnings quality is driven by investor-protection mechanisms. The same sense is maintained in the corporate-governance literature (Sloan, 2001). However, BMN propose a linear relation between investor protection and earnings quality, i.e., every investor-protection proxy is expected to have a linear effect on earnings-quality proxies.

My earlier arguments suggest that a set of linear models may not be elaborate enough to provide an in-depth understanding of the relation between earnings quality and investor protection. To draw up more precise models for the various relationships we need to recognize the characteristics of each of the proxies chosen for the two variables. First, I note that all the proxies for earnings quality are based on accounting numbers. None of these proxies rely on market numbers, e.g., value-relevance proxy of Ali and Hwang (2000), which is based on accounting earnings and market returns. Therefore, BMN's models are only dealing with accounting-based earnings-quality measures. They do not give sufficient information about the market's perceptions of earnings quality. Turning to investor-protection proxies, the first four and the last one listed in the introduction are reflective of protection for contractual arrangements and the remaining three are reflective of protection for market values. Based on this very brief analysis of the features of the proxies, I feel that future research should consider the features of the proxies and develop appropriate models based on such features. This will ensure that the relationships that are discovered are interpreted within the specific context of the proxies.

To elaborate this point further, I suggest that the earnings and investor-protection proxies should be carefully matched based on their characteristics. So, if legal arrangements are likely to affect contractual issues then they should be related with earnings-quality proxies that represent earnings quality in a contracting scenario. In some cases two or more of

investor-protection proxies may affect an earnings-quality measure. If such effects exist then those investor-protection proxies should appear together in the same OLS model. An example could be of ownership type and judicial system both affecting, say, accruals quality. So, higher concentration of ownership may reduce the quality of accruals, and this situation may be worse if the judicial system is weak. Furthermore, apart from their direct effects, they may have interaction effects as well.

Another point to note is that some of the proxies on investor protection may not be independent as they may be driven by more primary underlying variables (Ball et al, 2000, 2003). So, for example, the level of a country's development may affect both ownership concentration of firms in the country and the strength of the country's judicial system. In such circumstances the models may involve two or three stage ordinary least-square techniques to resolve the colinearity arising from such linkages. (See Nobes (1998) for other geopolitical, economic, and historical development issues that affect accounting practices and a firm's financing arrangement. A firms financing, in turn, also affects accounting practices). The models also need to recognize the direct effects and indirect/interaction effects. This may require tests of both the main effects and interaction effects of the variables. These intricate issues need to be exposed in future studies through precise modeling of the relationships between the variables.

6. Are the measures/proxies for the variables sufficiently representative of the variables?

The authors meticulously draw various proxies of investor protection and earnings quality from the literature on investor protection and earnings quality. Although the proxies may be measures of investor protection and earnings quality, as discussed earlier, each may represent a different aspect of these two variables. Since different aspects of investor protection may affect different aspects of earnings quality, to give a fuller and more precise picture, the characteristics of each of the proxies should be clearly delineated.

The assessment and identification of the earnings-quality attributes is done quite meticulously by BMN. It certainly adds to the robustness of the results. However, the authors have not clearly mentioned why other remaining measures or concepts of earnings quality have been left out of this study. These are measures such as the value-relevance measures of Ali and Hwang (2000) or the timeliness concept of Basu (1997) used in Ball et al. (2000). The authors should have tried to build a case for why they need certain proxies of earnings quality and not the others or perhaps they could have mentioned that they were focusing on just the accounting- based proxies to limit the scope of the paper.

A point to mention here is that some measures of investor protection that directly affect accounting practice such as standards quality and enforcement arrangements, could have been used as independent control variables. The measures of investor protection used in this study are not proximate enough to accounting practice to directly affect accounting-earnings quality. So, controls for other, more direct influences would have made the results of the investor-protection proxies more robust.

Variables that affect accounting quality exist at the firm, country, and market levels. For example, firm-level variables: market value, market-to-book and leverage, could be introduced to control for firm size, performance and risk effects on accounting practices. Morck et al. (2000) uses per capita GDP to control for the level of development of a country. Some of the firm, country, and market variables are listed below. Many of these are investor-protection variables, while others would be control variables.

Firm specific:

- Ownership structure
- Corporate financing
- Auditing
- Audit committee
- Board of directors
- Managerial compensation

Country specific:

- Legal environment
- Culture environment
- Accounting standard setting
- Accounting practice

Market:

- Market for corporate control
- Level of capital market development

Source: Wulandari (2005)

7. How effective is the data processing?

Data processing methods and formulae are clearly defined in the paper. This will be useful to future researchers as a reference. However, since the relationships between earnings quality and investor-protection variables are not clearly delineated with detailed reasoning, a broad association test is perhaps the only alternative available to test the hypothesis. I attempt to understand the data processing of this paper within an association arrangement rather than a causality framework.

The cluster analyses conducted in this paper are bivariate analyses. With so many variables intermingling in the accounting arena, such bivariate analyses are not very meaningful from a causality perspective, but they do give an idea of the associations between two variables. As already discussed, in a study such as this one, more attention needs to be placed on the intricacies of the variables and their interrelationships in the multivariate tests. The results speak for some of the care that needs to be taken in a multivariate environment of the type in which this study is conducted. Some results are as hypothesized while others have contradicted the hypotheses. The authors have made several speculative remarks to explain the contradictions. I feel that such remarks are not sufficient to give directions for future research. This point of course is recognized by the authors in the last paragraph when they state “One important implication of our study is that conclusions about earnings quality depend critically on how earnings quality is defined.” To this statement they could have added the point that the results also depend on the way investor protection is defined or what its proxies represent. Without a clear delineation of the proxies, it is difficult for the reader to form any view on the causal effects of the

independent variables on the dependent variables even when the results of the multivariate analyses are significant.

8. Do the authors recognize the limitations of the study?

BMN seem to realize that their study provides limited insights into the relation between earnings-quality attributes and investor protection. My review has identified what these limitations are. The first limitation is that of limited exposure and understanding of what the proxies for the two variables represent. These proxies are primarily accounting based and may be reflective of only some aspects of earnings quality and investor protection. Therefore, the results, even if as hypothesized, provide limited explanations for the relationships between the two variables. The second limitation arises from the fact that the models are partially developed in terms of portraying the relationships between the proxies of the two variables. Such partial models may not provide appropriate results for the relationships between the dependent and independent variables.

9. Are the contributions of the paper sufficient for future policy making?

The authors state that this study contributes to the accounting literature in two ways. First, this study explores cross-country differences in the properties of reported earnings, using four accounting-based earnings attributes. Second, it is supposed to extend prior studies such as DeFond, Hung, and Trezevant (2004), Ashbaugh and LaFond (2003), Leuz et al. (2003), Bhattacharya et al. (2003), Hung (2001), Ball et al. (2000) and Ali and Hwang (2000) by investigating the effects of investor protection on accounting-based attributes of earnings quality. The authors state that the findings of this study have implications for security analysts, regulators, standard setters, and other accounting information users in enhancing their understanding of legal institutional differences and their impact on the properties of reported earnings.

My overall assessment is that the recognition of the relationships between earnings quality and investor protection and the development of an initial framework for the examination of the relationship between the proxies of the two variables are the two most important contributions of this study. These contributions can have significant policy implications, as they address policy issues that have not been sufficiently considered in prior studies. Additionally, the relationship between the two variables can have implications for understanding how investor-protection differences may affect harmonization of accounting practice across different countries.

4. Conclusions

This paper should pave the way for future research in international accounting and corporate governance. However, much more needs to be done in future research endeavours to get concrete ideas and answers for public-policy improvements. Future research should attempt to extend the work reported in this paper by providing more clarity and specificity to the variables identified and the relationships highlighted. This would require an understanding of the single-country variables of earnings quality within a multicountry context that has varying investor-protection arrangements between countries.

More specifically, future studies should identify what aspect of accounting quality each proxy of earnings quality and each proxy of investor protection represent. Based on their features, the relevant investor-protection proxies should be matched with the earnings-quality

proxies in the multivariate models. This would allow the researcher to ascertain how specific investor-protection mechanisms at the firm, country, or market level affect a certain feature of earnings quality. Also, the multivariate environment of earnings needs to be appreciated. More than one investor-protection proxy may affect an aspect of earnings quality and there may be interaction and colinearity issues that need to be dealt with before a model is operationalized. Nevertheless, by bringing in many different proxies of earnings quality and investor protection, this study has highlighted the point that there are many different facets of both of these variables that need to be considered for policy making and future research.

To sum up, BMN have highlighted accounting issues involving investor protection at an international level. They have proposed a framework for such research, and have drawn the attention of researchers to well-tested metrics of single-country studies by demonstrating their use in multicountry contexts. In these respects, this study has made a timely contribution towards understanding accounting quality issues within the international business context.

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Reply

Reply to discussion of “Earnings attributes and investor protection: International evidence”

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1. Introduction

Professor Rahman offers a number of useful comments and suggestions in his discussion of our paper. His review focuses on the following major issues: the purpose of, and the motivation for, the study; aspects of the research methodology, including the use of linear models, the appropriateness of various proxies, and control variables; the limitations of the study and implications for policy making. We thank Professor Rahman for his thoughtful review and respond to his comments below.

2. The study's motivation

The discussant suggests that our objective of exploring the linkage between investor protection and earnings attributes is quite broad. He opines that we have not adequately justified why one should examine the relation between accounting and investor protection, although he personally sees the need for such a study. In our introduction, we discuss the importance of accounting quality to financial-statement users. We argue that managerial discretion is an important determinant of accounting quality, and that the degree to which this discretion is abused by managers depends on the extent to which investors are protected by law.

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We cite several studies (e.g., Ali & Hwang, 2000; Leuz, Nanda, & Wysocki, 2003) that have examined how investor protection is associated with specific earnings-quality measures. The main purpose of our study is to extend this research by examining four different earnings-quality proxies. Our results indicate that conclusions about the association between investor protection and earnings quality critically depend on how quality is measured. The discussant indicates that studies such as ours are important given the global convergence of accounting standards. He calls for research examining the impediments that accountants and analysts might face in this regard. Our research suggests that while variation in investor protection might be one such impediment, other factors (e.g., firm-specific governance mechanisms as suggested by the discussant) likely influence international accounting data. Thus financial-statement users cannot exclusively rely on investor-protection measures in assessing the reliability of international firms' accounting reports.

The discussant also rightly points out that the earnings attributes are firm-specific, whereas the investor-protection variables are based on country, market, and firm factors. We agree with his suggestion that future research use firm-level data to measure firm-specific investor protection, while noting that these data are not readily available and that assembling a cross-national dataset of firm-specific governance measures is likely a challenging endeavor.

3. Research method

The discussant believes that our empirical models presume a linear relationship between investor protection and earnings quality, whereas the real relationship between the two variables is likely to be nonlinear. We agree with the discussant that investor protection is likely nonlinearly associated with earnings quality. However, since the exact nature of this nonlinearity is not evident, our solution is to rank-transform the variables, as indicated in the paper. Linear estimation on rank-transformed variables is effectively a nonparametric model of, and allows for nonlinear relationships in, the original variables.

The discussant also suggests that we consider including two or more investor-protection proxies together in the same OLS model. While we appreciate the discussant's point, as a practical matter, we believe that given the high correlations among the investor protection variables (in some cases, well over 0.9), models with multiple explanatory variables are likely to suffer from a severe multi-collinearity problem. Moreover, the cluster analysis combines the independent variables, but yields essentially the same results as the regressions.

The discussant wonders why we choose the four earnings attributes that we examine, and not some others. We focus on variables that are accounting-based, rather than those that are based on both accounting data and stock prices, as conjectured by the discussant. Variables that are purely accounting-based are not overly reliant on assumptions about market efficiency, which may vary substantially across countries. Moreover, Francis, LaFond, Olsson, and Schipper (2004) find that the four accounting-based earnings attributes have a greater impact on firms' costs of capital than the market-based attributes. Finally, other researchers have examined the relationship between investor protection and market-based earnings attributes (e.g., Ali & Hwang, 2000, on value relevance and Bushman & Piotroski, 2006, on timeliness and conservatism).

The discussant recommends that we use measures of accounting practice and enforcement as controls. We include La Porta, Lopez-De-Silanes, and Shleifer's (2004) public-

enforcement variable as a control in our regressions (Table 6), since Bushman and Piotroski (2006) find that public enforcement impacts accounting choice. We feel that popular country-level measures of accounting practice, such as the CIFAR disclosure index, are a characteristic, rather than a determinant, of the accounting system, as are the earnings attributes. Thus the disclosure index is more appropriate as an alternative dependent variable (e.g., Hope, 2003) than as a control. Leuz et al. (2003) use accrual rules as a control, but find that the variable does not significantly affect earnings quality. Future researchers could develop other measures of accounting practice (e.g., proxies for audit quality) and incorporate them into the models.

4. Limitations of our study and implications for policy making

The discussant suggests that we do not fully analyze the exact nature of the various earnings attributes and investor-protection measures. We agree that these issues are not fully developed in our exploratory study. Given the paucity of theoretical research linking investor protection and earnings quality, we rely on the belief that strong investor protection is likely to constrain the manipulation of accounting data by insiders. Consistent with Leuz et al. (2003), we assume that investor-protection laws limit insiders' ability to acquire private control benefits, thus reducing their incentives to mask firm performance. However, our results suggest that this assumption may not be valid in an international context.

We strongly support the discussant's call for a rigorous theoretical investigation of the relationship between investor protection and earnings quality. Such an analysis might lead to both precise hypotheses and appropriate empirical modeling of the association between earnings quality and investor protection, as the discussant indicates. We also agree with the discussant that studies like ours can significantly contribute to important accounting issues such as harmonization.

5. Conclusion

We again thank Professor Rahman for his extensive review of our paper, and also appreciate all his favorable comments about our contributions. We concur with him that the relationship between earnings quality and investor protection likely remains a fruitful avenue for future research. In particular, researchers can fully analyze the exact nature of this relationship, and incorporate other firm-specific and country-level variables into their models.

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An analysis of the factors affecting the adoption of international accounting standards by developing countries

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Abstract

The purpose of this study is to identify the factors that could explain the adoption of international accounting standards by developing countries. The following factors have been selected: economic growth, education level, the degree of external economic openness, cultural membership in a group of countries, and the existence of a capital market.

Our results indicate that developing countries with the highest literacy rates, that have capital markets, and that have an Anglo-American culture are the most likely to adopt international accounting standards.

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Keywords: Developing countries; Explanatory environmental factors; International accounting standards

1. Introduction

With the growing internationalization of economic trade and the globalization of businesses and financial markets, financial information prepared according to a national accounting system may no longer satisfy the needs of users whose decisions are more and more international in scope. In some ways, purely domestic information may even be a handicap for businesses as well as investors.

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Conscious of this reality as well as the need to adapt accountancy to the new global environment and to the new requirements of decision makers, accounting regulating authorities have sought out solutions that allow for the improvement and advancement of financial accounting and its principal outputs. Although several initiatives have been put forward, harmonization of accounting standards and practices on an international scale has been the fundamental change in recent years. This initiative's goal is to have a coherent set of accounting standards and practices that provide national and international decision makers with a relatively homogenous information product that is comparable and reliable.

To arrive at this objective, the International Accounting Standards Board (IASB) has prepared and published international accounting standards (IAS), which have become the reference for the entire world (Dumontier & Raffournier, 1998).

Over the last 15 years, most of the debate has focused on the development of international accounting standards and, more recently, on the adoption of these standards by large industrialized countries, such as the United States, Canada, and members of the European Union.

Much less discussion has focused on developing countries' opportunities to adopt these standards. According to Richter Quinn (2004), accounting and financial information originating from developing countries is still difficult to trust, despite the urgent need for these countries to attract foreign investment and foreign capital, and despite the pressing demands from individual and institutional investors, lending institutions, and multinational agencies.

There is still no effective date when all developing countries will comply with IAS; however, some countries have taken the initiative to adopt IAS or adapt them to their particular reality. This process is expected to improve the quality and credibility of accounting information and improve the flow of capital and investment, resulting in economic development.

The primary force behind the adoption of IAS in developing countries is a country or a group of countries. Several studies have dealt with the issue of IAS adoption by a specific country. Yet none, to our knowledge, has attempted to define the reasons that motivate the adoption or non-adoption of IASB standards by a group of countries.

Our purpose in this study is to identify the factors that could explain the adoption of IAS by developing countries.

Understanding these factors is potentially useful for a number of organizations and decision makers, including governments, accounting standards setters, financial markets regulators, international institutions and investors, preparers and users of accounting information, and, finally, it may help the IASB in its efforts to promote the worldwide adoption of international standards.

In what follows, we first present a review of previous studies in Section 2; we then describe our research hypotheses in Section 3; we provide the methodology and results in Section 4; and our conclusion is in Section 5.

2. Review of previous research

Empirical research on favorable or unfavorable conditions for the adoption of IAS is almost non-existent. Most of the few existing studies are of a general nature and normative or descriptive of a particular country's circumstances.

The principles behind the adoption of IAS by different countries have always been the subject of controversy in accounting literature. Two schools of thought exist. The first supports the adoption of international standards, based on the following arguments:

- Harmonization of international accounting enhances the quality of financial information;
- It improves the comparability of accounting information in the international milieu;
- It facilitates financial operations on an international scale, and thus contributes to a better globalization of capital markets (Taylor, Evans, & Joy, 1986); and
- It contributes considerably, especially for developing countries, to strengthening integration and competitiveness in financial markets (Peavy & Webster, 1990).

According to Wolk, Francis, and Tearney (1989), international accounting harmonization is beneficial for developing countries because it provides them with better-prepared standards as well as the best quality accounting framework and principles.

The second school of thought insists that consideration of each country's specific environmental factors is necessary when establishing a national accounting system. Talaga and Ndubizu (1986) stressed that a country's accounting principles must be adapted to its local environmental conditions. In fact, according to Perera (1989a), the accounting information produced according to developed countries' accounting systems is not relevant to the decision models of less-developed countries. These arguments, and others, have led some authors to strongly oppose the adoption of IAS by developing countries (Hove, 1989; Perera, 1989b).

Several case studies have described and analyzed the adoption of accounting standards by a developing country or a group of developing countries (Wallace, 1990). McGee (1999) analyzed the IAS implementation process in developing countries, taking Armenia as the analytical framework. He showed that this process poses difficulties, which can be overcome by efforts in training and information dissemination about the new standards.

Chamisa (2000) studied the question of the usefulness of IAS for developing countries. Using a case study in Zimbabwe, he analyzed the impact of the adoption of IASB standards on the accounting practices of listed companies. He found that these standards have a particular importance for developing countries with an emerging financial market.

Empirical research projects carried out in the context of developing countries remain very small in number, yet some have attempted to analyze the economic consequences of the adoption of IAS in these countries.

Larson (1993) tried to determine if there is a difference between the economic growth rates of African countries that adopt IASB standards, with or without modification, and those that don't adopt these standards. The results of his research confirmed the notion that IASB standards, when they are adapted to a country's local conditions, can contribute to better economic growth.

On the other hand, Woolley (1998), while carrying out a similar study in Asian countries, concluded that there are no significant differences in the economic growth rates of countries grouped according to the adoption or non-adoption of IAS.

These studies have attempted to provide answers to interesting questions; however, the question of which factors are capable of influencing the adoption of IAS remains unanswered. The answer to this question is of major interest to various groups, primarily national and international harmonization organizations, and particularly the IASB.

3. Hypotheses to examine

International accounting literature generally argues that accounting is largely influenced by the environment found in different countries. According to Alhashim and Arpan (1992), the most important environmental forces influencing accounting are economic forces, social forces, the legal system, culture, and the political system. A particular country's choice of a specific set of accounting standards, policies, and practices is the result of an interactive process among a number of environmental factors. According to Cooke and Wallace (1990), these factors could be internal as well as external. They could include factors such as economic growth and the level of wealth, the level of inflation, the education level, the legal system, the country's history and geography, the financial system, the size and complexity of business enterprises, the notoriety of the accounting profession, the development of financial markets, sources of investment and financing, and the predominant culture and language. They may also include the existence of a colonial link, the presence of multinational enterprises, the significant importance of foreign investment and financing, the degree of openness to foreign markets, the signing of international agreements, and the presence of international accounting firms.

Any significant change in these factors in a particular country could affect its accounting regulations and policies. For instance, a decision to develop a stock market and attract international investment could trigger the restructuring of the accounting system and strongly motivate the adoption of international accounting standards.

The goal of our research is to identify major factors that could explain the adoption or non-adoption of IAS by developing countries.

In order to develop and frame our hypotheses, we have called mainly upon literature that analyzes the relationship and symbiosis that could be established between the planning and evolution of a country's accounting system and the characteristics of its environment. The relevance of this framework is founded on the assumption that a developing country's decision to adopt IAS is motivated by a group of specific environmental factors within that country.

The introduction of all these factors in our study has proven to be very difficult for several reasons, including the large number of variables and the difficulties in determining them, the difficulty in moving from conceptualization to a practical definition of the variables, and, finally, the difficulty in measuring the variables. In some cases, there has also been great difficulty in finding information. For the purposes of this research, the following factors were selected to explain a developing country's decision to adopt or not adopt IAS: economic growth; education level; the degree of external economic openness; cultural membership in a group of countries; and the existence of a financial market. These factors have been selected because of their very strategic importance in the adoption decision and because of the information available; they will be used in the formulation of the following hypotheses.

3.1. *Economic growth*

Economic conditions are a major determinant in the development of a country's accounting system. More specifically, it has been established that a country's level of economic growth has a positive effect on the development of accounting systems and practices (Adhikari & Tondkar, 1992). Indeed, in countries where the level of economic growth is relatively high, the social function of accountancy as an instrument of measurement and

communication is of considerable importance. Business and economic activities will reach a size and complexity that require a sophisticated, high-quality accounting system and standards. Where information plays a critical role (Abdolmohammadi, Rhodes, & Tucker, 2002; Nobes, 1998), the accounting system will undergo significant changes in response to demands of the changing economic conditions of a more dynamic business environment.

These arguments lead us to think that the decision by some developing countries to adopt IAS is a response to recorded economic growth. Thus the following hypothesis:

Hypothesis no. 1. The probability that a developing country will adopt IAS increases with economic growth.

3.2. Education level

Education is the pillar for modern complex accounting systems. It has been established that there is a positive relationship between education level and the competence of professional accountants (Gernon, Meek, & Mueller, 1987). The adoption of IAS is a very strategic and critical decision; it requires a high level of education, competence, and expertise to be able to understand, interpret, and then make use of these standards. Highly qualified accountants and well-trained users must exercise professional judgment and process complex information (Doupnik and Salter, 1995; Street, 2002). In fact, it is expected that, in countries where the education level is low and expertise is weak, there is a real barrier to the adoption of IAS. Thus the second hypothesis:

Hypothesis no. 2. The probability that a developing country will adopt IAS is positively tied to its education level.

3.3. The degree of external economic openness

External pressures could potentially affect the adoption of international accounting standards. Foreign investors, multinational corporations, international accounting firms, and world financial institutions are the main forces behind the development and adoption of international standards. Cooke and Wallace (1990) introduced the relevance of including external environmental factors in trying to understand accounting systems. One of these factors is the degree of outside economic openness. According to the authors, the more a country's economy is open to the outside world, the more the country will be exposed to diverse international pressures. Such pressures could lead some developing countries to adopt IAS. Thus the third hypothesis:

Hypothesis no. 3. Developing countries with a high degree of external economic openness will be more inclined to adopt IAS.

3.4. Cultural membership in a group of countries

It is generally accepted that culture is a major factor in the choice of an accounting system. Countries belonging to a certain culture adopt the accounting system inspired by countries of the same culture (Nobes, 1998).

Abdelsalam and Weetman (2003) highlighted the contribution familiarity and language make to the process of adopting new accounting standards. In the case of adopting IAS, they have shown that both factors, i.e., familiarity and language, seem to favor countries in the Anglo-American group, mainly because of the predominant Anglo-American influence in the development of IAS and also because English is the language of communication within the IASB.

Despite translation efforts by the IASB and countries involved, those outside the Anglo-American culture remain generally less familiar with IAS and have to commit significant resources to overcome this situation.

Given the Anglo-American influence on the IASB's work (Chamisa, 2000; Hove, 1986), we can anticipate that adoption of IAS would be easier for developing countries of Anglo-American culture. In fact, in these countries, several difficulties could be easily resolved because of their cultural proximity and, more specifically, because of their use of a common language (McGee, 1999). Thus the fourth hypothesis:

Hypothesis no. 4. Developing countries with Anglo-American culture are more likely to adopt IAS.

3.5. The existence of a capital market

The existence of a capital market is considered one of the key factors in a country's economic development because of its role in the optimal allocation of resources among the different economic sectors and among firms within each sector. Quality accounting information is a major ingredient in the development and efficient functioning of a capital market. According to Gray, McSwenney, and Shaw (1984), the pressures exerted by investors are important; investors require quality financial information in order to be able to make optimal choices when they analyze investment opportunities. In some cases, they can lead a country's accounting-standards-setting body to reform its accounting system and eventually adopt IAS (Adhikari & Tondkar, 1992).

In countries with a capital market, the standards-setting bodies tend to establish sophisticated accounting systems in order to guarantee the production and disclosure of quality financial information that will be potentially useful for investors in making their decisions (Adhikari & Tondkar, 1992). More specifically, Chamisa (2000) analyzed the role of IAS in improving the quality of financial information produced for the capital markets in developing countries. Accounting information, and particularly financial statements, remains a major resource for capital-market investors in developing countries because of the scarcity and, in many cases, the absence of other reliable sources of information. These arguments lead us to the fifth hypothesis:

Hypothesis no. 5. Developing countries with a capital market are more likely to adopt IAS.

4. Methodology and results

4.1. Sample and data sources

Our study is based on a sample of developing countries that was selected from the 2003 IASB Web site. In a section entitled "IAS Around the World" this site provides information

on the position of several countries' accounting systems in relation to IAS and the year of adoption.¹ Thus, and in consideration of the data available, we could combine the relative information into a group of 32 countries that had adopted IAS (with or without adjustment) and a second group of 32 countries that in 2003 had not adopted IAS. The list of countries in each of the two groups, divided according to continents, appears in Table 1.

Given that various developing countries' decisions to adopt IAS are spread over time, we have proceeded in a way that will ensure comparability of the data from the two groups. We determined the IAS adoption date for each country that had opted for this alternative and found the data on the same year for a similar country that had not. The similarity of the countries is based on the criteria of economic size measured by the GDP average during the study period.²

4.2. *The study's variables*

In this section, we present definitions and measurements of the dependent and independent variables.

4.2.1. *The adoption variable*

Examination of information on the accounting systems of the developing countries chosen for the study allows us to distinguish countries that have adopted IAS from those that have not. This distinction allows us to define a dichotomous variable that takes the value one if a country has adopted IAS (with or without modification) and zero if it hasn't.

4.2.2. *Independent variables and sources of data*

Before proceeding with the presentation of independent variables, we'd like to point out that the relative values of these variables were collected mainly from publications produced by the World Bank, as well as the specific countries in the study.

- i. *Economic growth (ECO)*: This variable is measured by the average annual growth rate of the gross domestic product (GDP) per person during the five years that preceded the date of adoption (source: World Development Indicators, 2003 CD-ROM, World Bank).
- ii. *Education level (EDUC)*: The measure used for this variable is the country's general literacy rate, as was done by Larson (1993). Because of the unavailability of specific data on the accounting profession in developing countries, this measure represents, in our opinion, a good indicator of the ability to deal with contemporary accounting

¹ In the particular case of Jamaica and Croatia, the year of adoption has been found in country-specific publication.

² The GDP average for every country on the IASB Web site has been calculated for the period beginning from 1991 (the earliest adoption date of IAS in our sample) to 2000 (the most recent date of adoption). We then ranked the group of adoptee and the group of non-adoptee on the basis of their GDP average. We finally matched countries in the two groups on the basis of their respective ranks. GDP data has been collected from World 2003 Development Indicators, CD-ROM, World Bank. The data for two missing countries, Iraq and Myanmar, have been collected from the United Nations Statistics Division (The United Nations, 2005).

Table 1

Presentation of the sample countries by region and according to their position with respect to IASB standards (source: the IASB Web site)*

Countries that have adopted IAS				Countries that have not adopted IAS			
Africa	Americas	Asia	Europe	Africa	Americas	Asia	Europe
–South Africa (1993)	–Brazil (1999)	–Cambodia (1998)	–Armenia (1998)	–Algeria	–Bolivia	–Saudi Arabia	–Albania
–Egypt (1998)	–Ecuador (1996)	–China (1993)	–Croatia (1992)	–Angola	–Chile	–Iraq	–Slovakia
–Kenya (1998)	–Haiti (1997)	–India (1998)	–Estonia (1995)	–Benin	–Colombia	–Kazakhstan	
–Tunisia (1996)	–Honduras (1997)	–Indonesia (1994)	–Georgia (1999)	–Botswana	–Nicaragua	–Kyrgyzstan	
	–Jamaica (2000)	–Malaysia (1997)	–Macedonia (1997)	–Burkina Faso	–Venezuela	–Myanmar	
	–Mexico (1995)	–Nepal (1996)	–Moldavia (1998)	–Burundi		–Turkmenistan	
	–Panama (2000)	–Sri Lanka (1995)	–Poland (1997)	–Congo		–Vietnam	
	–Peru (1998)	–Thailand (1999)	–Romania (1999)	–Cote d'Ivoire			
	–Dominican Republic (2000)		–Ukraine (2000)	–Libya			
	–Salvador (1999)			–Madagascar			
	–Uruguay (1991)			–Mali			
				–Niger			
				–Uganda			
				–Rwanda			
				–Senegal			
				–Tanzania			
				–Chad			
				–Togo			

– Countries classified as non-adopters in 2003.

– The year of IAS adoption for each country is indicated in brackets.

– For Jamaica and Croatia the year of adoption was found in country-specific publications.

systems. Literacy is a basic ingredient in the supply and demand for complex accounting and financial data and therefore it could be used as an indicator for business and accounting education. It may thus be interpreted as a proxy for the strength of the accounting profession and the users of financial statements (source: World Development Indicators, 2003 CD-ROM, World Bank).

- iii. *The degree of external economic openness (FDI)*: This variable is measured by the average rate of gross foreign direct investment, divided by the gross domestic product (GDP), for the five years that preceded the date of adoption. Investors and capital providers are, in most cases, a major source of pressure to support high-quality

Table 2
Comparison of variables between the two groups of countries

Variables	Adoption			Non-adoption			<i>t</i> -test	<i>U</i> -test
	Average	Standard deviation	Median	Average	Standard deviation	Median		
ECO	1.840	3.171	1.772	0.369	3.227	0.470	1.839*	
EDUC	81.700	15.640	84.594	61.603	22.252	61.600	4.180***	
FDI	2.775	2.252	2.607	2.358	1.592	2.358	0.857	
CULT	0.47	0.51	0	0.13	0.34	0	3.197***	-2.986***
ECM	0.88	0.34	1	0.31	0.47	0	5.500***	-4.545***

*Significant variable to 10%, ***significant variable to 1%.

Adoption: group of countries that has adopted IAS.

Non-adoption: group of countries that has not adopted IAS.

ECO: the annual average growth rate of GDP/person.

EDUC: the general literacy rate in the country.

FDI: the average of gross foreign direct investment divided by the GDP.

CULT: takes the value one if the country is a member of a group of countries with an Anglo-American culture and zero otherwise.

ECM: takes the value one if the country has a financial market and zero otherwise.

accounting standards and information (source: World Development Indicators, 2003 CD-ROM, World Bank).

- iv. *Cultural membership in a group of countries (CULT)*: This acts as a dummy variable. It takes a value of one if the country belongs to a group of countries with an Anglo-American culture³ and zero otherwise (source: specific country-based information).
- v. *The existence of a capital market (ECM)*: This also acts as a dummy variable. It takes a value of one if the country has a capital market in the year of adoption and zero otherwise (source: specific country-based information).

4.3. Characteristics of the independent variables for the two groups of countries

4.3.1. Descriptive statistics of the variables for the two groups

In light of the results obtained in Table 2, we note that there is a difference between the group of countries that adopted IAS and those that didn't, relative to the group of explanatory variables. Indeed, across the average relative values, we note that economic growth, education level, the degree of external economic openness, cultural membership in a group of countries, and the existence of a financial market are more elevated in the developing countries that decided to adopt IAS. Thus, we conclude that the relationships are the same as anticipated in our hypotheses. We will attempt to confirm these results with tests comparing the averages.

³ A country is classified in the Anglo-American group if its official language is English (Frank, 1979), or if its history has been marked by a strong tie with the United Kingdom or the United States (Nobes, 1998), such as having been a past colony, or being a member of the commonwealth or being part of a trade agreement such as NAFTA.

4.3.2. Comparison of variables between the two groups

At this point, it should be noted that the parametric Student *t*-test⁴ was used to compare the averages of quantitative variables (ECO, EDUC and FDI) and the non-parametric Mann–Whitney *U*-test was used for dummy explanatory variables (CULT and ECM).

Table 2, which summarizes the results obtained when comparing countries that adopt IAS to those that do not, shows that the economic growth and education level variables are significantly different between the two groups, at the level of 10% and 1% respectively. The degree of external economic openness (FDI) is higher in the adoption group (2.775 compared to 2.358); however, the difference is not statistically significant. Moreover, in light of the defined results, we found that the two qualitative variables (CULT⁵ and ECM⁶) are significantly different between the two groups, at the level of 1%.

Based on the univariate analysis, we could determine that developing countries that adopt IAS register the highest economic growth, have the highest education levels, have a capital market, and are of Anglo-American culture.

4.4. Multivariate analysis

The goal of this analysis is to investigate the combined effect of the variables used in this research on the adoption of IAS and to determine the meaning of this connection. Given that our dependent variable is a dichotomic variable that takes the value of one or zero, we called on an analysis model of logistic regression, which will be determined like this:

$$\text{Log}[P_i/(1-P_i)] = \alpha_0 + \alpha_1 \text{ECO}_i + \alpha_2 \text{EDUC}_i + \alpha_3 \text{FDI}_i + \alpha_4 \text{CULT}_i + \alpha_5 \text{ECM}_i + \varepsilon$$

Where:

P_i is the probability of adopting IAS;

ECO_i is the annual average growth rate of GDP/person;

EDUC_i is the general literacy rate in the country;

FDI_i is the average rate of gross foreign direct investment, divided by the GDP;

CULT_i takes the value one if the country is a member of a group of countries with an Anglo-American culture and zero otherwise; and

ECM_i takes the value one if the country has a capital market and 0 otherwise.

ε is the margin of error.

Before assessing this model, we will proceed with an analysis of the correlations between the different incidental variables in order to detect an eventual multicollinearity among them.

⁴ The normality test results (with the Kolmogorov–Smirnov test) demonstrate that the normality hypothesis is accepted for the distribution of all the quantitative variables. Therefore, for the comparison of averages, we applied the Student test for the variables of economic growth, education level, and degree of external economic openness.

⁵ The percentage of countries of Anglo-American culture is 46.785% in the group that has adopted IAS and 12.5% in the group that has not adopted IAS.

⁶ The percentage of countries that has a capital market is 87.5% in the group that has adopted IAS and 31.25% in the group that has not adopted IAS.

Table 3
Correlation matrix among variables

Variables	Adoption	ECO	EDUC	FDI	CULT	ECM
Adoption	1					
ECO	0.212	1				
EDUC	0.460***	0.122	1			
FDI	0.105	0.134	0.378***	1		
CULT	0.376***	0.254**	0.193	0.031	1	
ECM	0.573***	0.259**	0.568***	0.152	0.329***	1

***Significant correlation at the level of 1%, **significant correlation at the level of 5%.

Variables are defined under Table 2.

Table 4
Results of the logistic regression

Model: $\text{Log} [P_i / (1 - P_i)] = \alpha_0 + \alpha_1 \text{ECO}_i + \alpha_2 \text{EDUC}_i + \alpha_3 \text{FDI}_i + \alpha_4 \text{CULT}_i + \alpha_5 \text{ECM}_i + \varepsilon$

Variables	Expected results	Coefficient	Wald statistics
ECO	+	0.051	0.229
EDUC	+	0.034*	2.756
FDI	+	0.069	0.145
CULT	+	1.268*	2.867
ECM	+	1.867**	6.260
Constant		-3.887	
-2 log probability		58.407	
R ² of Cox and Snell		0.367	
Model Chi-square		29.316***	
% of correctly classification		79.7	
Sample size		64	

***Significant at the 1% level, **significant variable to 5%, *significant variable to 10% level.

Variables are defined under Table 2.

Correlations between explanatory variables appear in Table 3. Three of the correlations exceed 0.30 and all three are significantly correlated at the level of 1%: education level (EDUC) is positively correlated both with the degree of external economic openness (FDI) and with the existence of a capital market (ECM); and cultural membership in a group of countries (CULT) is positively correlated with the existence of a capital market (ECM).

However, conclusions about the presence or the absence of multicollinearity that are based solely on a simple correlation between independent variables must be made with care. Therefore, collinearity diagnostics based on the condition indexes and the variance inflation factor (VIF) were performed to measure the degree of collinearity. The results⁷ of the condition index and VIF indicate the presence of some collinearity but it is not of large enough magnitude to cause serious problems in the estimation of regression statistics.

Table 4 reports the results of the logistic regression, illustrating several conclusions that can be drawn.

⁷ The largest condition index and VIF calculated for this study were 4.61 and 1.65, respectively.

The education-level variable, statistically significant at the level of 10%, has a positive effect on the adoption of IAS. Thus, the countries with the highest education levels proceed with the adoption of IAS.

The cultural-membership variable is positively and significantly (at the level of 10%) associated with the adoption of IAS. Therefore, we can conclude that the countries having an Anglo-American culture are the most inclined to adopt IAS.

The existence of a capital-market variable has a positive and significant effect (at the level of 5%) on the adoption of IAS. Because of this, countries that are developing a capital market will proceed with the adoption of IAS.

Although they are positively associated with the adoption of IAS, the variables external economic openness and economic growth are statistically insignificant.

Thus, in light of the defined results, we can say that developing countries that have a high literacy rate, that belong to the Anglo-American culture, and that have capital markets are the most likely to adopt IAS.

5. Conclusion and implications

Over the past two decades the international community has been very interested in developing and implementing international accounting standards. But the adoption of these standards by developing countries has not received the same level of attention. The main objective of this study is to identify the factors that favor the adoption of IAS by developing countries. In this framework, we seek to verify the contribution of the following factors: economic growth, education level, the degree of external economic openness, cultural membership in a group of countries, and the existence of a capital market.

In applying logistic regression to a sample comprising 64 developing countries, we conclude that education level, existence of a financial market, and cultural membership are factors that are positively and significantly tied to the adoption of IAS. No significant relationships are found, however, for economic growth and external economic openness.

According to our results, we conclude that developing countries that enjoy the highest literacy rate, that have a capital market, and that belong to an Anglo-American culture are the most motivated to adopt IAS. The strong effect of the capital-market variable on the adoption decision seems to signal that high-quality accounting information is critical and strategically vital to the development of publicly traded corporations and the development of investment in the capital market. These results are in line with previous studies that have shown that the adoption of a particular accounting system is affected by the education level (Doupnik & Salter, 1995), cultural membership in a group of countries (Abdelsalem & Weetman, 2003) and the existence of a capital market (Adhikari & Tondkar, 1992).

Our results are potentially important for the countries concerned and for their accounting regulating bodies because they (our results) provide a better understanding of the factors that may encourage and facilitate the adoption of IAS. These results are also potentially useful for the IASB in its quest for a strategy to maximize and facilitate the adoption of international standards by different countries. According to our results, countries that don't belong to the Anglo-American culture have more difficulties in adopting IAS. The IASB

and other concerned bodies (such as international institutions) could take a more active and supportive role in helping these countries in their transition to international accounting standards.

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The value relevance of dirty surplus accounting flows in The Netherlands[☆]

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Abstract

Recently the Dutch financial reporting standard setters have taken steps to make dirty surplus accounting flows more visible to parties outside firms, either by eliminating their possibilities or by requiring comprehensive income-type statements. These steps are presumably based on the idea that dirty surplus accounting flows are relevant to investors and hence have to be visible to them.

Whether dirty surplus accounting flows are indeed relevant in firm valuation is an empirical issue. This paper, therefore, explores both the incremental and relative value relevance of dirty surplus accounting flows for the Dutch listed firms in the period 1988–1997, when their existence was relatively unhindered.

We find consistent evidence that both reported income and clean surplus income are relevant in explaining stock returns, though reported income seems a more relevant measure of returns in the period considered.

The results suggest that aggregated dirty surplus flows are not associated with stock returns with accumulation intervals up to 10 years; however, asset revaluations and currency-translation differences are at times incrementally relevant to returns.

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Keywords: Dirty surplus accounting flows; Value relevance; The Netherlands

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1. Introduction

The relevance of accounting information, most notably earnings, is an important topic because of the potential use of accounting information for contracting and valuation purposes (Beaver, 1998; Watts & Zimmerman, 1986). Recently, financial reporting standard-setting bodies have come under attack for allowing potentially relevant dirty surplus flows¹ to be kept out of earnings. Dirty surplus accounting flows, e.g., goodwill write-offs, asset revaluations, etc., bypass bottom-line earnings and are taken directly to shareholders' equity.

Two conflicting views exist about "dirty surplus accounting flows." The exclusion of *irrelevant* dirty surplus flows from earnings could potentially enhance the quality of reported earnings. Reported earnings are formed on the basis of more persistent components if noisy flows would be taken directly to shareholders' equity. Dirty surplus flows are used, in this case, as the means of improving reporting efficiency or, more specifically, earnings quality.

On the other hand, the exclusion of *relevant* dirty surplus flows could decrease the informativeness of accounting earnings.² For instance, the fact that value-relevant information is not disclosed in firms' primary statements may hinder the investors' ability to extract it in a timely and precise manner (O'Hanlon & Pope, 1999). Then it is likely that reported earnings are not a good indicator of stock returns.

In more and more countries standard setters apparently accept the second view, and they are eliminating dirty surplus accounting options to reduce managers' discretions with regard to reported bottom-line earnings. For example, in the United Kingdom, the Accounting Standards Board (ASB) effectively abolished extraordinary items in 1992 (FRS 3) and eliminated the dirty surplus treatment of goodwill write-offs in 1998 (FRS 10). In The Netherlands, the Council for Annual Reporting abolished the dirty surplus treatment of goodwill write-offs in 2000 (RJ 500.218).

The value relevance of dirty surplus items is an empirical issue. And also, given the costs of new regulations and the costs of enforcement, the issue arises over whether or not they deserve the recent special attention of standard-setting bodies.

The accounting research by Feltham and Ohlson (1995) and Ohlson (1995) can also motivate the attention directed at clean surplus accounting. In their residual income-based valuation framework, firm value is directly linked to observable accounting numbers given that the financial statements reconcile under the clean surplus relation.³ It implies that clean surplus income is considered as the summary performance measure in firm valuation. (Bernard, 1995; Dechow, Hutton, & Sloan, 1999; Walker, 1997).

¹ Dirty surplus accounting flows bypass income statement and are written-off directly from shareholders' equity. The term "dirty surplus flows" is used here in the context of "clean surplus earnings," which is defined as all changes of shareholders' equity except for the transactions between firms and their owners.

² There are also other explanations for the existence of dirty surplus flows. For instance, current treatment of asset revaluations is thought to be consistent with the conservatism principle. Upward asset revaluations are recorded as revaluation reserves, while downward revaluations in excess of revaluation reserves are expensed immediately on the income statement (Basu, 1997).

³ Clean surplus relation requires that ending-period book value of shareholders' equity is equal to the sum of opening-period book value of shareholders' equity, clean surplus income, and net capital inflows after subtracting dividend payments.

This study looks at firms listed in The Netherlands from 1988 to 1997. During that period, quite a few dirty surplus flows were allowed there. Since their existence was relatively unhindered, The Netherlands seems to be an interesting setting to investigate the relevance of dirty surplus items.

Moreover, although accounting practice in The Netherlands is considered to be similar to that in other common-law countries, such as the United Kingdom, and the United States (van Lent, 1997), Dutch investors are not thought to have much influence in company decision-making processes due to the Dutch policy of self-regulation for financial reporting in the private sector (DeJong, DeJong, Mertens, & Wasley, 2004) and the relatively weak position of its private sector regulatory body: Raad voor de Jaarverslaggeving (RJ). In the majority of Dutch listed firms, investors have little direct influence on the composition of the management and supervisory boards (with their two-tier co-optation system) because new board members are “self-elected” by the remaining members of that board.⁴

The freedom to choose financial reporting methods that the Dutch managers enjoy and the characteristics of the governance structure (Kabir, Cantrijn, & Jeunink, 1997; van Ees, Postma, & Sterken, 2003),⁵ therefore, could provide room for the existence of value-relevant dirty surplus items being kept out of firm’s primary performance report, i.e., an income statement.

This paper investigates whether dirty surplus items are value relevant and whether clean surplus net income is more highly associated with stock returns than currently reported income. To the best of our knowledge, no other study on the value relevance of dirty surplus accounting flows has been done in The Netherlands.

To test the value relevance of dirty surplus flows empirically, we use the standard approach of examining the statistical association between dirty surplus flows and stock returns. We employ an incremental association method to test the informativeness of dirty surplus accounting flows. In addition, we also conduct a relative association study to compare the explanatory power (i.e., with respect to returns) of clean surplus income and reported income (under the Dutch GAAP).

Due to a potential mismatch of stock market and accounting information, it is suggested in the literature to extend the testing window over long periods (Easton, Harris, & Ohlson, 1992; O’Hanlon & Pope, 1999; Warfield & Wild, 1992). Hence, we accumulate both stock market and accounting information in order to increase the power of the test.

Consistent with previous studies, we find that both currently reported income and clean surplus income are always relevant in explaining stock returns. But, reported income appears to be a better indicator of stock returns than clean surplus income.

⁴ In a two-tier system, firms are governed by a management board and a supervisory board. In The Netherlands, when firms have more than 100 employees and a common equity in excess of 13 million euros, they are classified as structure firms. The supervisory boards of structure firms could appoint and dismiss management boards and individual members of the supervisory boards, and the boards also have decision rights over financial statements (van Ees et al., 2003).

⁵ Cuijpers, Moers, and Peek (2004), suggest that the co-optation system enhances efficient corporate governance practices and they assume that the supervisory boards are able to monitor firms (also their financial reports) efficiently. However, we choose to follow the arguments in Kabir et al. (1997), and van Ees et al. (2003), which consider this co-optation system as an anti-takeover mechanism and it is in favor of the supervisory board. We suggest that this system results in inefficiencies of the supervisory boards.

The results also suggest that the aggregated dirty surplus flows are not relevant even with accumulation intervals of up to 10 years. However, there is some evidence that both the asset revaluations and the currency-translation differences are incrementally informative. Our data also indicate that goodwill write-offs are not relevant and the quality of earnings wouldn't have been enhanced in the testing period if the dirty surplus treatment of goodwill write-offs were abolished at that time.

The remainder of the paper is organized as follows. In the next section, we discuss dirty surplus accounting and provide some empirical evidence on the value relevance of dirty surplus flows. The third section discusses dirty surplus accounting possibilities in The Netherlands. The fourth section describes the hypothesis development and the research design. The data analysis and the empirical results are presented in the fifth section. In the final section, we conclude the paper and provide suggestions for future research.

2. Literature review

2.1. Dirty surplus accounting

Financial statements are stated on a clean surplus basis if ending-period book value (BV_t) is equal to the sum of opening-period book value (BV_{t-1}), clean surplus earnings ($NICL_t$), and net capital inflows ($NetCap_t$) after subtracting dividend payments (Div_t): $BV_t = BV_{t-1} + NICL_t + NetCap_t - Div_t$. Dirty surplus flows arise if certain changes in shareholders' equity bypass reported earnings.

As explained earlier, stock investors could have difficulties in extracting value-relevant information from dirty surplus flows to a certain extent, due to the fact that they are disclosed in secondary statements only (Brief & Peasnell, 1996; O'Hanlon & Pope, 1999).

From the equity-valuation perspective used in this paper, we consider a component of dirty surplus accounting flows to be relevant for stock returns if it is incrementally relevant.⁶ Moreover, reported earnings would be less relevant if relative transitory flows were included (Beaver, 1998; Scott, 2003; Watts & Zimmerman, 1986). So if dirty surplus flows were less persistent than other components of reported earnings, then the clean surplus earnings would not be more relevant than the reported earnings even if dirty surplus accounting flows are incrementally informative.

A value relevance study of accounting information presumes that the market is efficient on average, i.e., all publicly available information is reflected in prices. Sloan (1996) and Xie (2001), for example, provide consistent evidence that the U.S. market does not price components of earnings correctly. Unfortunately, there is little evidence on the efficiency of the Dutch market. Aboody, Hughes, and Liu (2002), however, suggest that although the relevance of accounting numbers would be considerably lowered if it were measured in an inefficient market, this difference is not big enough to alter the conclusions that previous value relevance studies draw. Also it seems that the market under reacts to accounting information only up to 3 years. Therefore, we deal with the issue of potential market inefficiency by accumulating both stock market and accounting information over periods up to 10 years.

⁶ Note that, the reporting of dirty surplus flows could also serve compensation purposes and be relevant there; see for example Biddle and Choi (2003). However, we do not address this issue in our paper.

2.2. Evidence on the magnitude and value relevance of dirty surplus flows

There is earlier evidence on the magnitude of dirty surplus accounting flows. The median of dirty surplus flows (deflated by market value of shareholders' equity) is -0.4% in the United Kingdom (O'Hanlon & Pope, 1999) and 0% in the US (Dhaliwal, Subramanyam, & Trezevant, 1999) in the periods studied. Lo and Lys (2000) document a considerable deviation of clean surplus accounting for the U.S. firms.⁷ In particular, 14% of their observations report dirty surplus flows that are larger than 10% of the clean surplus income. Similar results can be found in Cahan, Courtenay, Gronewoller, and Upton (2000) with New Zealand data, Kanagaretnam, Mathieu, and Shehata (2004) for Canadian firms, or Lo and Lys (2000), Hand and Landsman (2005), and Chambers, Linsmeier, Shakespeare, and Sougiannis (2005) all with U.S. data.

However, U.S. research suggests that clean surplus income does not perform better than reported income when associating both with stock returns (Dhaliwal et al., 1999). More recent studies, however, do claim that the comprehensive income as defined in SFAS 130 is a better measure of firm value (Biddle & Choi, 2003; Chambers et al., 2005).

Studies in other countries find little evidence that dirty surplus flows are relevant; see for example: O'Hanlon and Pope (1999) for UK, Kanagaretnam et al. (2004) for Canada, and Cahan et al. (2000) for New Zealand. It seems that there is no conclusive evidence on the value relevance of dirty surplus accounting flows.

3. Dirty surplus accounting practices in The Netherlands

3.1. Accounting regulatory procedures

During the period covered in this paper (1988–1997), the following describes the financial reporting regulation in The Netherlands (Buijink & Eken, 1999; Zeff, Buijink, & Camfferman, 1999).

The Fourth (1978) and the Seventh (1983) EU Directives were incorporated in the Dutch domestic-company law. The Fourth Directive regulates the format and the content of financial reporting by companies with limited liability, and in particular the overriding "true and fair view" principle is adopted. The Seventh Directive stipulates regulations about consolidated financial statements.

Fundamental issues in Dutch annual reporting appear in the company law as part of the Dutch Civil Code. The parliament is the primary source of financial reporting regulation. The regulations are initiated by the Minister of Justice (Minister van Justitie) and evaluated by the Social and Economic Council (Sociaal-Economische Raad), i.e., the advisory body of parliament in economic matters, and by the Council of State (Raad van State), i.e., the senior advisory body of government in legal matters.

The Enterprise Chamber (Ondernemingskamer) has the legal authority to evaluate complaints from interested parties if they consider that corporate financial statements contradict the law.

⁷ Using data from 1962–1997.

The Dutch auditing profession and representatives from companies participate in the council for annual reporting (Raad voor de Jaarverslaggeving, 2002 or RJ). As a private sector regulatory body, the RJ issues guidelines that elaborate on legal stipulations. The Netherlands Institute of Registered Accountants (NIVRA) provides technical supports to the RJ. However, the guidelines do not have the legal position of law and the auditors do not need to report non-compliance. Hence, it seems that the RJ is less influential than the FASB in the U.S. (van Lent, 1997).

3.2. Dirty surplus accounting possibilities in The Netherlands

Dutch accounting law is not explicit in its choice of adopting the clean surplus concept of income. And the Guidelines (*Richtlijnen*) of the RJ⁸ did require “all-inclusive” income (RJ 240.202) in the period considered but they allowed specific exceptions. The dirty surplus items included the following in the period 1988–1997:

- a) Purchased goodwill can be charged directly to equity (Dutch accounting law, Section 2:389.7);⁹
- b) The creation of a revaluation reserve for the amount of the value increase of an asset, in case of application of current valuation (Dutch accounting law, Section 2:390.1). Decreases in the value of assets valued at current prices should as a rule, be booked to reduce the revaluation reserve. Only if there is no more revaluation reserve left, should a decrease in current value be charged as a loss to the income statement (Dutch accounting law, Section 2:390.3);
- c) Currency-translation differences can be booked directly to equity. The Dutch law merely requires that the policies for the translation of amounts in foreign currency be disclosed, and that the policy for the recognition of currency-translation differences be disclosed (Dutch accounting law, Section 2:384.5). The RJ requires currency-translation differences with respect to activities in foreign entities to be reflected directly in equity (RJ 120.916–922);
- d) The cumulative effect of changes in accounting policies (RJ 140.113–117) and the correction of fundamental errors (RJ 150.106) are preferably reflected directly in equity;
- e) Expenses and capital tax in respect of an issue of shares are allowed to be charged to the share premium, although it is preferred to capitalize and amortize these items or to charge them directly to income (RJ 240.213);
- f) The following items of a non-recurring or exceptional nature, if material, may be shown directly as movements in equity (RJ 240.211):
 - “Adjustments” to the provision for deferred tax liabilities due to changes in the tax rate, but only to the extent that the deferred liability relates to revaluation of assets;
 - Effects of a financial reorganization whereby creditors and shareholders relinquish all or part of their rights in connection with the write-off of a loss;

⁸ It stands for the Council for Annual Reporting, which is the Dutch private sector regulatory body.

⁹ Note that the Council for Annual Reporting abolished dirty surplus treatment of goodwill write-offs in 2000 (RJ 500.218), and the Dutch government proposed to Parliament a bill to the same effect in 2002 (*Kamerstukken Eerste en Tweede Kamer*, publication number 28220).

- Losses due to the destruction of capital (for example as the result of a natural disaster) for which it is not possible or not customary to take out insurance cover; adverse effects of nationalizations, one-off capital levies or similar forms of expropriation.

Hence, the RJ in The Netherlands allowed quite a few exceptions to the all-inclusive income in the period 1988–1997. There was no requirement to include a comprehensive income figure in the primary financial statements. There was, however, a legal requirement to provide a statement of movements in equity in the notes to financial statements (Section 2:378.1). For each item in equity, i.e., the issued capital and the various separate reserves (Section 2:373.1), this statement should show the opening balance, additions and reductions during the financial year (classified according to their nature), and the closing balance.

Five categories of dirty surplus accounting flows that existed in The Netherlands in the period covered in this paper will be considered: goodwill write-offs (GW), asset revaluations (REV), currency–translation differences (CUR), sundry items (OTH) including the “events” described under d. and e. above, and extraordinary dirty surplus items (EDSI), which are the effects of the “events” described under f. above.

The reporting of purchased goodwill write-offs, sundry items, and extraordinary items as dirty surplus accounting flows is under a firm’s discretion. A firm also has some influence on the timing and valuation of asset revaluations, however, it has few discretions on the reporting of currency–translation differences.

4. Research question development and research design

4.1. Incremental value relevance of dirty surplus accounting flows

The value relevance of accounting flows is conventionally defined as their statistically significant association with stock returns. Hence, we regress returns on dirty surplus items and on reported net income to test the incremental value relevance of dirty surplus accounting flows. The purpose of this test is to discover the variations in returns that can be explained by dirty surplus items, i.e., incremental to reported net income. It enables us to examine whether or not value-relevant accounting flows are excluded from income statement.

Our first research question therefore is:

Are dirty surplus flows incrementally value relevant over reported net income?

We extend our testing windows to up to 10 years to deal with the timing problem of accounting information. The market incorporates contemporary events in a timely fashion, whereas earnings or components of earnings may reflect value-relevant events of previous periods but may not record other events of a corresponding interval (Easton et al., 1992). Due to this timing difference in the recognition of economic events in stock returns and in accounting systems, the returns–earnings association should be stronger over longer testing windows, i.e., accumulating both returns and accounting information over more than 1 year (Easton et al., 1992). Warfield and Wild (1992) also show that the long-interval approach is capable of reducing the measurement errors inherent in accounting systems, which is due largely to their incapability of incorporating sufficient information to estimate a firm’s future growth opportunities or goodwill.

Dirty surplus items are not disclosed in a firm's primary financial statements, and they are presented in the footnotes only in The Netherlands as explained earlier. Due to this hidden nature, it is necessary to accumulate dirty surplus flows especially over longer testing windows (O'Hanlon & Pope, 1999). Hence, we use the long-interval methods in the context of dirty surplus accounting flows to be able to perform a more powerful test (Easton et al., 1992; O'Hanlon & Pope, 1999; Warfield & Wild, 1992).

Investors are assumed to pursue a "hold and invest" strategy, i.e., dividends are assumed to be reinvested to earn the equity cost of capital in the subsequent periods. The cum-dividends stock returns at time t is accumulated over a T -period interval. The return (r^T) used in this paper, therefore, equals

$$r^T = \prod_{t=1}^{t=T} (1 + r_t) - 1 \quad (\text{E1})$$

Our period t return lags behind the corresponding accounting period by six months. According to the Dutch Civil Code, article 210, firms are obliged to publish financial statements five months after the fiscal year-end. However, they could get a one-month extension for the release of the statements. Hence our choice of return period allows the market to fully assimilate accounting information.

All accounting flows are accumulated according to the method developed by Easton et al. (1992) and are scaled by a firm's market value of shareholders' equity six months after the beginning of the interval. We report the results based on the third model of Easton et al. (1992, p128, M3) since the conclusions are not sensitive to alternative specifications; see for example: Ohlson and Penman (1992, p562), and Louis (2003, p1032).

$$\begin{aligned} NI^T &= \frac{\sum_{t=1}^{t=T} NI_t}{MV_0}; & DS^T &= \frac{\sum_{t=1}^{t=T} DS_t}{MV_0}; & GW^T &= \frac{\sum_{t=1}^{t=T} GW_t}{MV_0}; \\ REV^T &= \frac{\sum_{t=1}^{t=T} REV_t}{MV_0}; & CUR^T &= \frac{\sum_{t=1}^{t=T} CUR_t}{MV_0}; & OTH^T &= \frac{\sum_{t=1}^{t=T} OTH_t}{MV_0} \\ EDSI^T &= \frac{\sum_{t=1}^{t=T} EDSI_t}{MV_0}; & NICL^T &= \frac{\sum_{t=1}^{t=T} NICL_t}{MV_0} \end{aligned} \quad (\text{E2})$$

NI^T : net income (i.e., income after extraordinary items), DS^T : total dirty surplus accounting flows, GW^T : goodwill write-offs, REV^T : asset revaluations, CUR^T : foreign currency-translation differences, OTH^T : sundries, $EDSI^T$: extraordinary dirty surplus items, and $NICL^T$: clean surplus net income (i.e., the sum of the dirty surplus flows and the net income).

We report results based on accumulation intervals of one, two, five, and ten years.

The first model (M1) is a cross-sectional univariate regression of stock returns on net income. It is the benchmark model for this study.

$$r_{it}^T = \alpha_1 + \beta_1 \text{NI}_{it}^T + e_{1it}, \quad (\text{M1})$$

T is the interval length, and i and t refer to company i and period t respectively.

The second model (M2) tests the incremental value relevance of aggregated dirty surplus flows.

$$r_{it}^T = \alpha_2 + \beta_2 \text{NI}_{it}^T + \beta_3 \text{DS}_{it}^T + e_{2it} \quad (\text{M2})$$

Dirty surplus flows are relevant in explaining returns in the presence of net income if β_3 is statistically significant.

The third model (M3) examines the incremental value relevance of three components of dirty surplus flows.¹⁰

$$r_{it}^T = \alpha_3 + \beta_4 \text{NI}_{it}^T + \beta_5 \text{GW}_{it}^T + \beta_6 \text{REV}_{it}^T + \beta_7 \text{CUR}_{it}^T + e_{3it} \quad (\text{M3})$$

If the dirty surplus flows are incrementally relevant, the coefficients on components of dirty surplus flow (β_5 , β_6 , and β_7) should be significantly different from zero. F -statistics are taken as the criteria for the joint significance of three components of dirty surplus flows.

4.2. Relative value relevance of clean surplus net income

We also examine the consequence of the inclusion of dirty surplus items in currently reported income by comparing two income measures: pro forma clean surplus income and reported income. The income measure, which can explain more variances in returns, is considered a better choice for equity-valuation purposes, *ceteris paribus*. This test could help users of accounting information choose among alternative measures of income.

Our second research question therefore is:

Is clean surplus net income more highly associated with returns than reported net income?

The fourth model (M4) measures the relative value relevance of clean surplus income.

$$r_{it}^T = \alpha_4 + \beta_8 \text{NICL}_{it}^T + e_{4it} \quad (\text{M4})$$

NICL_{it}^T is defined as the sum of net income and dirty surplus flows of a T -period interval of company i in period t . Again, we accumulate both stock market and accounting flows using the long-interval method explained earlier. In order to assess the quality of various income measures, (M4) is compared with (M1) and the J -test for non-nested models is taken as the criterion for model selection.

¹⁰ We exclude sundries and extraordinary dirty surplus items from the regression analysis due to the presence of large numbers of zero observations.

5. Data selection and empirical results

5.1. Data selection and descriptive statistics

We gather share prices from Datastream for the whole population of Dutch listed firms in the period of 1988–1997 and we hand-collect accounting information from firm's financial statements. After excluding financial firms, the final sample is refined using the following criteria:

- i. Annual price, dividends, and market value of shareholders' equity information are available on the 2004 Datastream research files;
- ii. Relevant accounting information is disclosed in financial reports and the firm's fiscal year ends in December;
- iii. Information concerning returns, net income, components of dirty surplus flows, and market value of shareholders' equity are available across the whole research period (1988–1997).

This selection procedure yields 82 Dutch firms. We list their names in Appendix 1. For each of them we have 10 observations, i.e., 820 firm-year observations in total. Employing these selection criteria may lead to survivor bias. However, it does enable us to control for the negative effects of extreme values, which are often reported by financially distressed firms.

Table 1 shows the distribution of observations by industry.

Table 1
Sample distribution by industry sector¹²

Industrial sector	Number of companies
Brewers	2
Chemicals, commodity	4
Other construction	4
Distrib. ind. Comps	9
Diversified industry	5
Electronic equipment	12
Engineering, general	8
Food + drug retailers	4
Food processors	3
Paper	2
Household	11
Information technology	1
Leisure	1
Media	6
Personal products	1
Retailers, multi dept.	1
Computer services	4
Steel	1
Transportation	3
Med equip + supplies	1
Total	82

¹² Based on FTSE industrial classification.

Table 2

Descriptive data for variables used to estimate models of the association of net income and dirty surplus flows with returns

<i>T</i>	<i>N</i>	Mean	Std. dev.	25%	50%	75%	%<0	%=0	%>0
<i>T</i> =1 year	820								
RETU		0.214	0.404	−0.062	0.147	0.395	32	0	67
NI		0.077	0.115	0.056	0.089	0.118	7	0	93
DS		−0.029	0.082	−0.042	−0.007	0	62	13	25
GW		−0.031	0.061	−0.036	−0.002	0	53	44	3
REV		0.001	0.030	0	0	0	14	65	21
CUR		−0.001	0.011	−0.001	0	0	30	47	24
OTH		0	0.011	0	0	0	10	79	11
EDSI		0	0	0	0	0	0	100	0
NICL		0.048	0.141	0.017	0.062	0.106	19	0	81
<i>T</i> =2 years	410								
RETU		0.467	0.697	−0.024	0.291	0.744	26	0	74
NI		0.184	0.209	0.116	0.185	0.261	9	0	91
DS		−0.067	0.138	−0.111	−0.030	0	69	9	22
GW		−0.072	0.117	−0.095	−0.023	0	63	34	2
REV		0.004	0.043	0	0	0	17	58	25
CUR		−0.002	0.019	−0.001	0	0	35	43	22
NICL		0.114	0.247	0.024	0.130	0.216	20	0	80
<i>T</i> =5 years	164								
RETU		1.697	2.271	0.333	1.008	1.987	15	0	85
NI		0.737	0.685	0.404	0.680	1.002	7	0	93
DS		−0.307	0.476	−0.489	−0.168	−0.019	82	5	13
GW		−0.304	0.468	−0.467	−0.135	−0.002	76	21	3
REV		0.013	0.121	0	0	0.008	20	48	32
CUR		−0.005	0.033	−0.005	0	0	39	38	23
NICL		0.446	0.656	0.169	0.407	0.701	18	0	82
<i>T</i> =10 years	82								
RETU		4.883	4.652	1.580	3.824	6.784	5	0	95
NI		2.083	1.867	1.062	1.712	2.705	7	0	93
DS		−0.898	1.311	−1.157	−0.509	−0.085	88	2	10
GW		−0.880	1.274	−1.072	−0.428	−0.061	84	12	4
REV		0.032	0.160	0	0	0.028	24	35	40
CUR		−0.001	0.053	−0.010	0	0.003	39	30	30
NICL		1.109	1.335	0.339	0.859	1.791	13	0	87

Notes: The sample consists of all 1988–1997 listed non-financial Dutch firms that have required financial data from Datastream and accounting data in their financial reports. The firms also have complete information available across the period 1988–1997 and their fiscal years end in December. Observations are winsorized at 0.005 each tail over a one-year interval, 0.01 over a two-year interval, 0.015 over a five-year interval, and 0.025 over a 10-year interval.

Variable definition: *T*: accumulation interval of *T* years. *N*: the number of firm-year observations. NI: reported net income. DS: total dirty surplus flows. GW: goodwill write-offs. REV: asset revaluations. CUR: currency-translation differences. OTH: sundries. EDSI: extraordinary dirty surplus items. NICL: clean surplus net income. All accounting flows are scaled by the market value of shareholders' equity six months after the beginning of the interval and are accumulated as described in Section 4.1. We present the descriptive data of EDSI and OTH on an annual basis only, because of the presence of large numbers of zero observations.

Table 2 presents the summary statistics of the variables.¹¹ We winsorize the variables at 0.005 each tail over a one-year interval, 0.01 over a two-year interval, 0.015 over a five-year interval, and 0.025 over a 10-year interval to deal with influential observations.

Table 2 reveals that (scaled) goodwill write-offs are by far the most important dirty surplus items. For instance, goodwill write-offs are –3.1% on average over a one-year interval, whilst the asset revaluations and the currency-translation differences are both about 0.1% of the market value of shareholders' equity. Our non-tabulated statistics show that 60% (61%) of firms report dirty surplus flows larger than 10% of reported net income (clean surplus net income) in absolute terms. Extraordinary dirty surplus items (EDSI) are not significantly different from zero and 79% of firms don't report sundries.

And it seems that firms are more likely to write-off dirty surplus flows as net expenses. Clean surplus net income is only about 50% of the reported income. Taken together, the descriptive statistics suggest that dirty surplus flows reduce reported net income substantially.

Table 3 provides the correlation matrix. There is a significant positive correlation among net income, clean surplus net income, and returns. However, dirty surplus flows are not always associated with any of them.

5.2. Regression results

In Table 4, we present the estimation results for models (1)–(4) over various intervals. Panel A shows the statistics for the returns–(reported) income model (M1) of up to 10 years, and Panel B for the returns–(reported) income, and total dirty surplus flows model (M2) of up to 10 years, and so on.

The coefficients on reported net income are always positive at 1% significance level in the returns–(reported) income model (Panel A). The results thus provide consistent evidence that the reported income is value relevant.

Panel B shows that in the presence of reported income, the aggregated dirty surplus flows are insignificantly different from zero, even with accumulation intervals of up to 10 years. Overall, our evidence implies that the aggregated dirty surplus flows are not value relevant, although they are large in magnitude.

However, asset revaluations and currency-translation differences are significant in explaining returns on a yearly basis at less than 5% significance level (Panel C). Over longer time periods, the results are mixed and it suggests that asset revaluations are relevant over a two-year interval; and currency-translation differences are relevant over a five-year interval. The *F*-test of joint significance of components of dirty surplus flows rejects the null hypothesis that none of them is able to explain variations in returns at less than 5% level.

Both the coefficients and the *R*-squares are higher in the returns–(reported) income model (0.938 and 0.071, respectively, Panel A, one-year interval) than in the returns–clean surplus-income model (0.719 and 0.063 respectively, Panel D, one-year interval).

¹¹ We include the summary statistics of all five components of dirty surplus flows on a yearly basis. However, we do not accumulate sundries or extraordinary dirty surplus items because the long-term pattern of these flows is expected to be the same as their yearly summary statistics, i.e., these two variables contain zero observations, mainly. The presence of large numbers of zero observations may also bias our estimation results; therefore, we run the incremental association model (M3) with three main components of dirty surplus flows: goodwill write-offs, asset revaluations, and currency-translation differences.

Table 3

Correlation matrix for variables used to estimate models of the association of net income and dirty surplus flows with returns

	RETU	NI	DS	NICL
<i>T</i> = 1 year				
RETU	1			
NI	0.270*** (0.000)	1		
DS	0.066* (0.059)	0.014 (0.684)	1	
NICL	0.251*** (0.000)	0.802*** (0.000)	0.577*** (0.000)	1
<i>T</i> = 2 years				
RETU	1			
NI	0.393*** (0.000)	1		
DS	−0.041 (0.405)	−0.084* (0.090)	1	
NICL	0.307*** (0.000)	0.791*** (0.000)	0.525*** (0.000)	1
<i>T</i> = 5 years				
RETU	1			
NI	0.428*** (0.000)	1		
DS	−0.239*** (0.002)	−0.468*** (0.000)	1	
NICL	0.304*** (0.000)	0.723*** (0.000)	0.231*** (0.003)	1
<i>T</i> = 10 years				
RETU	1			
NI	0.376*** (0.001)	1		
DS	−0.394*** (0.000)	−0.710*** (0.000)	1	
NICL	0.174 (0.119)	0.465*** (0.000)	0.178 (0.109)	1

Note: The sample consists of all 1988–1997 listed non-financial Dutch firms that have required financial data from Datastream and accounting data in their financial reports. The firms also have complete information available across the period 1988–1997 and their fiscal years end in December. Observations are winsorized at 0.005 each tail over a one-year interval, 0.01 over a two-year interval, 0.015 over a five-year interval, and 0.025 over a 10-year interval. Variable definition: *T*: accumulation interval of *T* years. NI: reported net income. DS: total dirty surplus flows. NICL: clean surplus net income. All accounting flows are scaled by the market value of shareholders' equity six months after the beginning of the interval and are accumulated as described in Section 4.1.

The significance level of each correlation coefficient is reported in parentheses below the reported correlation coefficients. ***Significant at 1% level, **significant at 5% level, and *significant at 10% level.

The *J*-test of non-nested models always prefers reported income to clean surplus income over various testing windows because the statistics suggest that clean surplus income doesn't encompass reported income in explaining returns (Panel D, the last column). The

Table 4
Results of the estimation of models that test the incremental (relative) value relevance of dirty surplus flows (clean surplus income) over reported net income in explaining returns

Panel A: Model 1				
<i>T</i>	<i>N</i>	Int.	NI	<i>R</i> -Sq.
1	820	0.142 (0.017)***	0.938 (0.145)***	0.071
2	410	0.226 (0.041)***	1.309 (0.188)***	0.155
5	164	0.652 (0.176)***	1.419 (0.219)***	0.183
10	82	2.933 (0.699)***	0.936 (0.291)***	0.141

Panel B: Model 2					
<i>T</i>	<i>N</i>	Int.	NI	DS	<i>R</i> -Sq.
1	820	0.151 (0.018)***	0.935 (0.145)***	0.306 (0.192)	0.075
2	410	0.224 (0.047)***	1.306 (0.187)***	−0.042 (0.332)	0.155
5	164	0.636 (0.199)***	1.343 (0.230)***	−0.233 (0.665)	0.185
10	82	3.060 (0.810)***	0.484 (0.371)	−0.907 (0.666)	0.174

Panel C: Model 3								
<i>T</i>	<i>N</i>	Int.	NI	GW	REV	CUR	<i>R</i> -Sq.	<i>F</i> -test
1	820	0.148 (0.019)***	0.922 (0.150)***	0.049 (0.208)	1.241 (0.582)**	4.835 (1.822)***	0.096	3.59**
2	410	0.207 (0.046)***	1.205 (0.183)***	−0.517 (0.328)	1.658 (0.991)*	2.112 (1.643)	0.175	2.98**
5	164	0.608 (0.230)***	1.321 (0.225)***	−0.500 (0.604)	0.541 (2.400)	8.586 (2.669)***	0.212	4.08***
10	82	2.690 (0.688)***	0.483 (0.264)*	−1.273 (0.570)**	1.740 (3.189)	−10.445 (8.169)	0.227	1.98**

Panel D: Model 4						
<i>T</i>	<i>N</i>	Int.	NICL	<i>R</i> -Sq.	Nn. (M1)	Nn. (M4)
1	820	0.180 (0.014)***	0.719 (0.113)***	0.063	0.411 (0.254)	0.690 (0.242)***
2	410	0.368 (0.036)***	0.867 (0.165)***	0.094	−0.035 (0.382)	1.022 (0.281)***
5	164	1.227 (0.235)***	1.053 (0.328)***	0.093	−0.034 (0.678)	1.018 (0.435)**
10	82	4.213 (0.785)***	0.605 (0.435)	0.030	−0.008 (1.032)	1.002 (0.391)**

reported income seems to be more persistent than the clean surplus income, and they are the preferred measure of economic income.

We observe a trend of increasing returns–income associations as the accumulation intervals are lengthened: the *R*-squares increase from 6–10% to more than 10%. Though, there is a decrease over the 10-year window in models (1), (2), and (4). This decrease may be owing to the effects of outliers, and may also be because the number of observations is reduced substantially in that period.

5.3. Robustness tests

In addition, we perform a number of robustness tests. First, since our data are pooled across time, it is likely that autocorrelation appears in our sample. We, therefore, re-run all our models with the fixed-effect panel-estimation procedure along the time dimension. Second, the models are estimated on an annual basis to examine the variations in the value relevance of dirty surplus flows across time. Third, we accumulate our data with the three other long-interval methods developed by Easton et al. (1992) and O'Hanlon and Pope (1999) respectively to check if the results are influenced by different accumulation procedures. Fourth, we winsorize our one-year data at 0.0025 each tail, two-year data at 0.005, five-year data at 0.01, and ten-year data at 0.02 each tail to verify the results with alternative definitions of outliers. Our conclusions are supported with these robustness tests.

6. Conclusions and suggestions for future research

This paper tests the value relevance of dirty surplus flows with both an incremental and a relative association study. We find that aggregated dirty surplus items are not value relevant

Notes to Table:

The sample consists of all 1988–1997 listed non-financial Dutch firms that have required financial data from Datastream and accounting data in their financial reports. The firms also have complete information available across the period 1988–1997 and their fiscal years end in December. Observations are winsorized at 0.005 each tail over a one-year interval, 0.01 over a two-year interval, 0.015 over a five-year interval, and 0.025 over a 10-year interval. Variable definition: *T*: accumulation interval of *T* years. *N*: the number of firm-year observations. Int.: intercepts of the model. NI: reported net income. DS: total dirty surplus flows. GW: goodwill write-offs. REV: asset revaluations. CUR: currency-translation differences. NICL: clean surplus net income. All accounting flows are scaled by the market value of shareholders' equity six months after the beginning of the interval and are accumulated as described in Section 4.1.

Models

$$M1 \quad r_{it}^T = \alpha_1 + \beta_1 NI_{it}^T + e_{1it}$$

$$M2 \quad r_{it}^T = \alpha_2 + \beta_2 NI_{it}^T + \beta_3 DS_{it}^T + e_{2it}$$

$$M3 \quad r_{it}^T = \alpha_3 + \beta_4 NI_{it}^T + \beta_5 GW_{it}^T + \beta_6 REV_{it}^T + \beta_7 CUR_{it}^T + e_{3it}$$

$$M4 \quad r_{it}^T = \alpha_4 + \beta_8 NICL_{it}^T + e_{4it}$$

The panels labeled M1, M2, M3, and M4 report the estimated coefficients of the respective models. The sub-columns labeled by the variables' names report the estimated coefficients of the relevant variables. *R*-Sq.: *R*-squares of the estimated models. *J*(M1)/*J*(M4) represents the non-nested *J*-test assuming that M1/M4 is the true model and it reports the coefficients of the predicted value from M4/M1 in the artificial nesting model. Huber–White standard errors are reported in parentheses below the reported coefficient. ***Significant at 1% level, **significant at 5% level, and *significant at 10% level.

over one, two, five, and ten-year intervals. However, there is some evidence that asset revaluations and currency-translation differences have explanatory power for stock returns.

Reported income appears to be a more relevant measure of firm value than clean surplus income in the period considered in The Netherlands, although both of them are associated with returns.

However, the conclusions have to be interpreted with caution when drawing standard-setting inferences because they are only from an equity-valuation perspective. Other empirical studies could investigate the influence of accounting information on contracting costs, for instance. It should be noted that by providing more reliable information the political and auditors' liability costs (Kothari, Lys, Smith, & Watts, 1988) could be reduced even if the information is not relevant for security valuation.

Appendix A. The firms in the final sample

Number	Name of the firms
1	Aalberts Industries
2	ACF Holding N.V. (97: Brocacef)
3	Ahrend Groep
4	AIR (Automobiel Industrie Rotterdam)
5	Akzo
6	Alanheri
7	Amsterdam Rubber Cultuur Maatschappij (RCMA)
8	Arag Holding
9	BAM Holding
10	Batenburg Beheer
11	Beer's Zonen
12	Blydestein — Willink
13	Boer, de, Winkelbedrijf (97: De Boer Unigro)
14	Boer, de, Drukkerij (Boekhoven) (93: Roto Smeets de Boer)
15	Boskalis Westminster
16	Burgman Heybroek
17	Cate, ten, Nijverdal
18	Cindu-Key and Kramer (CKK) / Cindu Int.
19	CVG (Crown v. Gelder c)
20	Dico International
21	Dorp Groep
22	Drie Electronics
23	Econosto
24	Elsevier
25	Eriks Holding
26	Frans Maas Beheer
27	Gamma Holding
28	Gelderse Papier Groep
29	Getronics
30	Geveke Electr. Int./Geveke
31	Gouda Vuurvast
32	Grolsch Bierbr.
33	Groothandelsgebouwen

Appendix A (*continued*)

Number	Name of the firms
34	GTI-Holding
35	Hagemeyer
36	HBG (Hollandse Beton Groep)
37	Heineken
38	Hoek Loos (s Machine and Zuurstoffabriek)
39	Hoogovens
40	Hunter Douglas
41	Internatio Muller
42	Klene's
43	Koppelpoort Holding
44	Krasnapolsky
45	Kuhne + Heitz
46	Landre and Gilderman
47	Macintosh Confectie
48	Melle, van
49	Mulder Boskoop
50	Naeff
51	NAGRON (Nat. Grondbezit)
52	NBM Bouw/NBM Amstelland
53	NEDAP
54	Nedlloyd
55	Nedschroef Holding
56	Neways Electroniscs
57	NKF Holding
58	Norit
59	Nutricia Gem. Bezit/Ver. Bedr.
60	Oce van der Grinten
61	Ordina Beheer
62	OTRA
63	Pakhoed
64	Philips
65	Polynorm
66	Porceleyne Fles
67	Reesink
68	Rood Testhouse
69	Stork
70	Schuitema
71	Schuttersveld
72	Simac Techniek
73	Telegraaf de, Holding
74	Textielgroep Twenthe
75	Tulip Computers
76	Twent. Kabel Holding
77	Ubbink
78	VNU verz. Bez.
79	Vredestein
80	Wolters Kluwer
81	Wegener Arcade (Wegener Tijl)
82	Weweler

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A study of earnings-management motives in the Anglo-American and Euro-Continental accounting models: The Canadian and French cases

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Abstract

The purpose of this paper is to investigate factors that potentially influence earnings-management policy with reference to the Anglo-American and Euro-Continental accounting models. Canada and France, respectively, belong to those different socio-economic environments. Earnings-management practices detected in those countries are expected to be affected by specific socio-economic features of the Anglo-American and the Euro-Continental environments. We explain earnings-management practices by incentives suggested in the literature to reveal which motives are prominent within each environment.

We tested our earnings-management motives (EMM) model using appropriate panel-estimation techniques over 1674 Canadian and 1470 French firm-year observations. Our results provide evidence that incentives for earnings management for French firms are specifically linked to contractual debt costs and effective tax rate. However, Canadian firms show specific incentives matched with a dynamic capital market. Issuing equity is a strong motive for earnings management in Canadian firms.

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Keywords: Earnings management; Discretionary accruals; Financial reporting; International accounting; Panel-estimation techniques

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1. Introduction

Earnings management has often been considered as the alteration of a firm's reported economic performance by insiders to either mislead some stakeholders or to influence contractual outcomes (Healy & Wahlen, 1999). In effect, a wide literature has addressed the issue of earnings management. Most studies in this area have concentrated on the Anglo-American world. These studies have tried to examine earnings management in particular contexts. They investigated incentives provided by management-compensation plans (Guidry, Leone, & Rock, 1999; Healy, 1985; Holthausen, Larker, & Sloan, 1995), debt contracts (DeAngelo, DeAngelo, & Skinner, 1994; DeFond & Jiambalvo, 1994; Healy & Palepu, 1990; Sweeney, 1994), regulatory cases (Cahan, 1992; Jones, 1991; Key, 1997), and stock price motives such as stock offering (Erickson & Wang, 1999; Shivakumar, 2000; Teoh, Welch, & Wong, 1998), avoiding decreases and losses (Burgstahler & Dichev, 1997; Burgstahler & Eames, 2003) and meeting thresholds such as analysts' and management's forecasts (Burgstahler & Eames, 1998; DeGeorge, Patel, & Zeckhauser, 1999).

However, little attention has been focused on earnings-management motives in countries from the Euro-Continental accounting model. French managers operate within an accounting system which is contingent upon specific socio-economic features. Although Leuz, Nanda, and Wysocki (2003) documented international differences in earnings-management behavior for a large number of countries (including Canada and France), they did not examine specific determinants of earnings management for these countries. Considering 31 countries in their study has confined them to using broad, institutional factors to explain earnings management (outside investor rights, legal enforcement, private control benefits, etc.) as well as descriptive and aggregate measures of earnings management (median ratio of the firm level standard deviation of operating income and operation cash flow, country's Spearman correlation between the change in total accruals and the change in cash flow from operations, country's median ratio of the absolute value of total accruals and the absolute value of the cash flow from operations, etc.). Their results may suffer from an endogeneity bias (Leuz et al., 2003, p. 521). They also recognize that "theoretical relations among institutional factors are not well understood and hence difficult to disentangle" (Leuz et al., 2003, p. 526).

This paper sheds light on the importance of certain specific motives for earnings management within different socio-economic environments. We investigate specific factors which potentially influence earnings-management policy with reference to the Anglo-American and Euro-Continental accounting models. Canada and France, respectively, belong to those different socio-economic environments.

The accounting system in Canada is marked by a conceptual framework that safeguards shareholder interests. Accounting values of flexibility and professionalism prevail as in Anglo-American accounting traditions (Gray, 1988). Financial reporting is independent of the tax system. The capital market has a major role in enhancing financing through equity. Pressures from a dynamic capital market (shareholders, financial analysts, and the financial press) are prominent.

On the other hand, the accounting system in France, as in most Continental European countries, relies upon the "Plan Comptable" and codified rules that have the purpose of

satisfying stakeholders' information needs. The French accounting system is characterized by values of uniformity and statutory control (Gray, 1988). Accounting earnings are linked to fiscal rules (Frydlander & Pham, 1996). The finance mode of French companies is based to a large extent on bank loans.

Hence, earnings-management practices detected in these two countries are expected to be affected by specific socio-economic features of the Anglo-American and the Euro-Continental environments. We attempt to explain earnings-management practices by incentives suggested in the literature to reveal which motives are prominent within each environment. We notice that initial and subsequent equity offerings are more frequent for Canadian firms than for French firms. Financing through the capital market is likely to have more influence on earnings management for Canadian firms. In contrast, pervasive debt-to-equity ratios and effective tax rates in French firms are more likely to affect earnings-management behavior.

To test for the importance of specific motives for earnings management within Canadian and French environments, we develop an Earnings-Management Motives (EMM) regression model that takes into consideration differences in motives between Canada and France. Earlier studies on earnings management widely used either time-series data (Dechow, Sloan, & Sweeney, 1995; Guay, Kothari, & Watts, 1996; Jones, 1991) or cross-section data (Bartov, Gul, & Tsui, 2001; Becker, DeFond, Jambalvo, & Subramanyam, 1998; DeFond & Subramanyam, 1998; Peasnell, Pope, & Young, 2000; Subramanyam, 1996). Both approaches have limitations. The time-series approach assumes temporal stationarity of parameter estimates, whereas the cross-sectional approach assumes homogeneity across firms in the same industry (Larker & Richardson, 2004, p 633). Other research studies, confined to data limitation, used pooled-across-sample firms (Cahan, 1992; Erickson & Wang, 1999; Han & Wang, 1998; Leuz et al., 2003) to maximize their sample size. However, their approach uses cross-sectional techniques for the same sample of firms introduced many times along with the time-period of analysis. A prime advantage of our statistical approach is that it uses appropriate panel-estimation techniques to take into account both the time and year dimensions of each Canadian and French observation. We used panel data of 1470 Canadian and 1674 French firm-year observations during the period 1996–2000. Based on directional and non-directional measures of earnings management (signed discretionary accruals and absolute value of discretionary accruals), we tested our EMM panel-regression model.

Collectively, results suggest that incentives for earnings management for French firms are specifically linked to contractual debt costs and the effective tax rate. However, Canadian firms show specific incentives matched with a dynamic capital market. Issuing equity is a strong motive for earnings management in Canadian firms.

Our study considers the interests of international investors, standard setters, market authorities, and auditors. Considering specific motivations for earnings management within each socio-economic environment may help international investors distinguish their different impacts on accounting earnings for evaluation purposes. Standard setters and regulators should be conscious of the specific determinants of earnings management to provide appropriate standards/rules limiting discretionary behavior of managers. Auditors have to be able to understand differences in earnings-management motives in order to detect specific manipulations of accounting earnings.

The remainder of the paper is organized as follows. Section 2 presents the backgrounds and develops the hypotheses for the study. Section 3 describes our sample, details the earnings-management proxy-estimation method, and presents our research design. Section 4 provides descriptive statistics of earnings-management motives and reports results of our analysis based on our EMM panel-regression model. Section 5 concludes the paper.

2. Backgrounds and hypotheses development

2.1. Differences between Canadian and French accounting models and their implications for earnings-management behavior: main hypotheses

Despite the growing acceptance of International Accounting Standards (IAS, denoted as International Financial Reporting Standards, IFRS, since 2001) by Canada and France, Gray and Street (2001) still find differences between Euro-Continental and Anglo-American countries in terms of IAS/IFRS implementation. Leuz, Nanda, and Wysocki (2000) argue, “IASC standards possess no enforcement rules and rely on local auditors and country-specific legal remedies to enforce standards. Therefore, it is unclear whether IASC rules will limit earnings-management practices around the world.”

Indeed, Canadian and French firms utilize different accounting systems and operate within socio-economic environments which have many distinguishing features that may influence accounting earnings. As with all human activities, accounting rules and practices as well as capital markets are affected by culture (Douglas, 1989; Wildavsky, 1989). Accounting is a socio-technical activity involving an interaction between both human and non-human resources and, because the two interact, accounting cannot be culture-free.

As Hussein (1996) asserted, there is already awareness among many accounting researchers and standard setters of the social and cultural influences on accounting (Beresford, 1990; Gray, 1988). Gray (1988) relied upon cultural differences proposed by Hofstede (1984) to explain international differences in the behavior of accountants and, therefore, in accounting practices. He developed four distinguishable accounting values which are linked to cultural values: professionalism versus statutory control; uniformity versus flexibility; conservatism versus flexibility; and secrecy versus transparency. Then, he extended his analysis by demonstrating that the first two contrasting values relate to authority and enforcement while the second two relate to measurement and disclosure. In this respect, it is commonly accepted that Canada, as an Anglo-American country, has higher professionalism, flexibility, and transparency; while France, as a Euro-Continental country, is characterized by higher statutory control, uniformity, conservatism, and uncertainty avoidance. Moreover, Gray (1988) pointed out that these societal values (i. e., cultural values) have institutional consequences in the form of the nature of capital markets and patterns of corporate ownership, legal systems, etc. More specifically, accounting values of professionalism, flexibility, and transparency have shaped the finance mode and shareholder corporate-governance model as well as the latitude permitted to professionals and the lack of interaction between financial reporting and tax systems. In contrast, the accounting plan, credit-based system, stakeholder corporate-governance model, and the strong influence of government in accounting regulation emerged from values of statutory

control, uniformity, conservatism, and uncertainty avoidance. Hence, earnings management is a function of the institutional contexts in which accounting earnings are used.

2.1.1. Finance pattern and corporate governance: shareholder versus stakeholder model

Companies are financed in a variety of ways. Both debt and equity can take different forms and be provided by many different types of individuals or institutions. The finance pattern of a firm affects accounting earnings in a number of ways. In fact, the way in which a firm is financed is linked to the corporate-governance model prevailing in a country.

Within Anglo-American countries, the shareholders corporate-governance model prevails. Shareholders are the main partners of the firm. Shareholders elect the governing board and they monitor directors through audit, nomination, and remuneration committees. Compared to Euro-Continental countries, there is greater monitoring of managers by external board members and by financial analysts as well as by the financial press.

The demand for accounting earnings in Anglo-American countries presents special features by comparison with accounting demands in Euro-Continental countries. Financial reporting is based on a conceptual framework that has the priority of satisfying shareholders' needs for accounting information. The capital market has a vital role in providing finance. Consequently, the financing pattern of Anglo-American companies is dominated by equity and there is more separation of owners and managers. Companies are characterized by a diffuse ownership structure and as such are more likely than owner-controlled firms to manage earnings, and to do so more frequently (Dempsey, Hunt, & Schroeder, 1993). Shareholders, financial analysts, and the financial press impose greater pressures on Canadian managers. Canadian managers use a discretionary attitude to circumvent pressure from a dynamic capital market.¹

Unlike Anglo-American countries, in Continental European countries, stakeholder corporate governance tends to be implemented by a number of firm partners such as banks, pension plans, and employee groups or labor unions, and by major customers and suppliers. Ball, Kothari, and Robin (2000) point out that the stakeholder views accounting earnings as a common "pie" to be divided among groups by such means as bonuses to employees and managers, dividends to shareholders, and taxes to governments. This is in contrast to common-law countries, where the demand for accounting earnings under code law is influenced more by the payout preferences of agents for creditors, government, and labor and less by the demand for public disclosure. Within the stakeholders' corporate-governance model, we notice the prominence of banks as the main providers of capital. Because capital provided by banks is very significant, managers pay little attention to the relatively small number of individual and minority shareholders. Accounting rules, therefore, should be more conservative, being designed to protect creditors.

In this regard, France has a stakeholder corporate-governance model, which is dominated by banks, government, or families. As a code-law country, there is a demand for a low volatility income variable (Ball et al., 2000). The French government has long protected large firms from stock market operations (Bertin, Jaussaud, & Kanie, 2002). After

¹ The volatility of the Toronto Stock Exchange Index TSX300 is higher than the volatility of the "Bourse de Paris" Stock Exchange Index CAC40. Over the period 1995–2000, the standard deviation of the TSX3000 index is 1728.02 whilst the standard deviation of the CAC40 index is 1558.43.

the nationalizations in 1981, the privatization process started in 1986 and has contributed to a “hard stone” of shareholders and cross-participations stabilizing the firm equity (Blancel, 1997; Morin & Dupuy, 1993). In the same vein, the OECD report (1995) documents that, in France, cross-participation is wide spread. O’Sullivan (2002) outlines the existence of an important system of cross-participation among large French firms which creates an obstacle to the move to an Anglo-American model of capitalism. Stakeholder corporate governance in France mitigates the need for public disclosure. The need for disclosure is limited to legal requirements. Main stakeholders like creditors and tax authorities, considered by Ball et al. (2000) as insiders, have private access to financial information through personal contacts and direct visits. Insider communication reduces the information asymmetry between managers and stakeholders. Moreover, the large majority of French firms are family- or state-owned. Equity is not diffused among the public and the capital market has a less important role in providing finance ² compared to banks that finance firms through loans.

Accordingly, prior studies have shown that managers increase earnings when the company is first introduced to the stock market (Friedlan, 1994; Teoh et al., 1998; Teoh, Wong, & Rao, 1998) or when it proceeds, subsequently, to equity offerings (Ragan, 1998; Teoh et al., 1998). Hence the first hypothesis:

The more frequent are initial and subsequent equity offerings, the more likely managers are to use accruals to increase earnings. However, we expect that initial public and equity offerings, such as those prevailing in Anglo-American countries, are more likely to influence income-increasing accruals in Canadian firms than in French firms.

We consider EQUISSUE as a dummy variable that takes one if the firm has proceeded to equity offerings either to be initially introduced to the capital market or to, subsequently, increase its equity by issuing securities, zero otherwise.

Furthermore, bankers and lenders rely extensively on financial statements for the evaluation of a firm’s financial standing and credit rating. Therefore, managers of firms that need the continuous support of their lenders and in order to avoid an increase in the cost of capital, have incentives to opt for income-increasing accruals that enhance their firm’s level of profitability (DeFond & Jiambalvo, 1994). This is the second hypothesis we test. The higher the debt-to-equity ratio, the more likely managers are to choose income-increasing accruals. However, we expect that the influence of debt-to-equity ratio on income-increasing accruals is more likely to be significant in French firms than in Canadian ones.

² Fewer than 969 French companies are listed in 2000 as compared to 3767 Canadian listed companies. Further, the ratio market capitalization to GDP in France ranges only from 38.40 in 1996 to 111.80 in 2000, whereas it ranges in Canada from 83.90 in 1996 to 122.30 in 2000. (See table below).

Year	1996	1997	1998	1999	2000
Number of Listed firms on local capital markets					
France	578	686	683	711	968
Canada	1444	1265	1362	1384	3767
Market capitalization/GDP in %					
France	38.4	48.4	69.5	103.0	111.8
Canada	83.9	93.4	93.6	126.1	122.3

source: The World Bank : “World development indicators”

2.1.2. *Legal system: relationship between tax rules and financial reporting rules*

The legal system in most countries can be classified as either common law (non-legalistic) or code law (legalistic).

The development of common law is attributed to individual action in the private sector, rather than to collective or government planning in the public sector. This naturally influences company law, which traditionally does not prescribe rules to cover the behavior of companies and how they should prepare their financial statements to produce accounting earnings. Canada, as an Anglo-American country, has a common-law accounting system which includes the accounting standards used to prepare financial information. These standards evolve by becoming commonly accepted in practice. Accordingly, accounting rules and tax rules are kept separate in Canada. Financial reports are drawn up according to accounting standards while tax reports are drawn up outside of the accounting framework. The measures used in financial reporting which determine accounting earnings are generally not binding for tax purposes. For example, expenses do not have to be accounted for in order to be allowed for tax purposes (Cooke & Wallace, 1990; McCourt & Radcliffe, 1995). Taxable income is calculated according to case law and, to a lesser extent, according to codified tax law. It is not determined by company law (Walton, 1995). Therefore, in Canada, accounting earnings and taxable earnings do not interact.

On the other hand, France, along with most Continental European countries, has a code-law accounting system. Company accounting is, to a large extent, a branch of company law. Regulations are designed to ensure orderly business conduct and to protect all the firm's stakeholders (creditors, tax authorities, unions, etc.). The code-law accounting system in France prescribes regulations that range from abstract principles (e.g.: "prudence") to detailed procedures (e.g.: the format of financial statements provided in the "Plan comptable général"). Governmental requirements imposed on the profession through the "Plan comptable général" have strongly influenced accounting practices in France (Perera, 1989). This General Accounting Plan is typically prescriptive, detailed, and procedural. Financial accounting is very much a public-sector activity, administered by governmental (or quasi-governmental) bodies. A primary role of financial accounting in France is to determine how much income tax a company owes to the government.

Indeed, the tax and financial reporting systems are very closely related in France. The historic development of the relationship between taxation and accounting is characterized by a long absence of specific accounting legislation until the 1960s (Frydlander & Pham, 1996). Tax law intervened without regard to either accounting theory or existing accounting practices (Fortin, 1991; Frydlander & Pham, 1996; McCourt & Radcliffe, 1995; Sheid & Walton, 1995). As a consequence of the strong influence of taxation on accounting, many of the tax rules are being used for financial-reporting purposes. In particular, depreciation is largely determined by tax rules and has to be written into accounts to be deducted for tax income. Also, according to tax law, "provisions réglementées," and research expenditures have to be recorded in financial statements in order to be tax deductible (Code général des impôts, Art. 39–1, Art. 236–1). Further, tax authorities may exclude certain expenditures from being deductible, even when they have been reported in the financial statements. Hence, it is relevant in France that taxation regulations determine accounting measurements. Conversely, many of the financial-reporting rules are being used by tax

authorities. All entries in the books are relevant for taxation. When tax rules differ from accounting rules, the taxable profit has to be computed, starting from the accounting profit, on forms (“tableaux de passage”) attached to financial statements. Therefore, in France, taxable earnings and accounting earnings are linked.

In this regard, taxes may represent a means used by political agents to impose costs upon firms. Both Canadian and French managers would be incited to reduce accounting earnings in order to pay lower taxes.

This is the third hypothesis of our study. The higher the effective tax rate, the more beneficial income-decreasing accruals would be. However, because of the tight relationship between the French tax and financial reporting systems, we expect that the effective tax rate is more likely to be significant in French firms than in Canadian firms with respect to influencing income-decreasing accruals. We measure the effective tax rate as income taxes paid and accrued divided by income before taxes.

2.2. Control variables

As reported in the literature, a variety of factors influence earnings-management behavior. With this in mind, we have selected a number of control variables organized under the following three broad headings: firm characteristics, contextual factors, and conjectural factors.

2.2.1. Firm characteristics

2.2.1.1. Firm size. This is often used as a proxy for political sensitivity. Large firms with large profits, fearing government action, may try to manage earnings downwards (Liberty & Zimmerman, 1986; Zimmerman, 1983). We expect a negative relationship between firm size and accruals for both Canadian and French samples. The larger the firm, the more likely managers are to choose income-decreasing accruals.

2.2.1.2. Industry. Firm industry is seen as an important variable in determining accounting choices (Watts & Zimmerman, 1986). A firm operating within one industry may be more tempted to manage accounting earnings than one operating in another. We use the dummy variable (IND) in our EMM model to summarize dummy variables for each industry in our sample.

2.2.1.3. Managers' ownership. Managers have at least two incentives to choose income-increasing accruals. First, income increasing gives a positive image to the firm and may help managers avoid management buyouts and hostile takeovers (Williamson, 1985). Second, bonus plans are usually widespread within firms with diffuse equity (Holthausen et al., 1995), especially for Canadian firms. A high concentration of equity for managers may lessen the incentives for them to increase income excessively. To control for the influence of managers' ownership on earnings management, we retain the corporate-governance variable measured by the sum of equity percentage detained by managers having more than 5% ownership. The higher the managers' ownership percentage, the less managers are inclined to choose income-increasing accruals.

2.2.1.4. Audit quality. Auditors typically exert a constraining influence on earnings management. It is reported in the literature that a high quality audit frequently translates into lower accruals (Becker et al., 1998; Davidson & Neu, 1993; DeFond & Subramanyam, 1998; Francis, Maydew, & Sparks, 1999). Big Six auditors are perceived as more competent and more independent and, therefore, provide higher quality services than smaller, non-Big Six auditors (DeFond, 1992; DeFond & Jiambalvo, 1991, 1993; Francis & Wilson, 1988; Nichols & Smith, 1983; Palmrose, 1988; Simunic & Stein, 1987). If a firm is audited by Big Six auditors (now Big Four), managers are less likely to choose income-increasing or-decreasing accruals. However, in light of recent accounting scandals, this may no longer be a valid conclusion.

2.2.1.5. Foreign stock exchange listing. Investors have a positive perception of companies listed on a foreign stock exchange. Furthermore, being listed on a foreign stock exchange implies a higher level of transparency, and, therefore, a lower level of earnings management is observed for these firms. If firms are listed on a foreign stock exchange, managers are less inclined to choose income-increasing and income-decreasing accruals.

2.2.2. Contextual factors

2.2.2.1. Small loss avoidance. Several recent studies have focused on thresholds as an incentive for earnings management. Specifically, these studies provided evidence that managers try to avoid small losses (Burgstahler & Dichev, 1997; Burgstahler & Eames, 2003; Degeorge et al., 1999). For example, Leuz et al. (2003) claim that “while one may argue that managers have incentives to avoid losses at any size, they have only limited reporting discretion and hence are unable to report profits in the presence of large losses. Small losses, however, are more likely to lie within bounds of insiders’ reporting discretion and consequently can be avoided through earnings management.” Therefore, in both Canada and France, small losses are often translated to small profits in order to avoid negative reactions from the capital market. We used a dummy variable (SMLOSS) with the value of one if a company reports small profits, i.e., the company is located in the range of [0.00; 0.01] of companies ranked by the ratio (Net Earnings/Total Assets); zero otherwise. The more frequent are small losses, the more likely managers are to choose income-increasing accruals.

2.2.3. Conjectural factors

2.2.3.1. Smoothing reported operating earnings. Prior studies have shown that another reason to manage earnings is income smoothing (Chaney, Jeter, & Lewis, 1998; Chaney & Lewis, 1995; DeFond & Park, 1997; Ronen & Sadan, 1981). To control for the motivation of managers of either Canadian or French firms, to smooth earnings, we consider the variable (POTSMTH) that measures the potential to smooth in each sample of the firms. At a firm-level, (POTSMTH) is computed as standard deviation of operating income between two consecutive years divided by the mean of operating income between the same two consecutive years. We expect that the higher the potential to smooth earnings upwards

Table 1
Sample selection

Descriptions ^a	Number of firm-year observations during the period 1996–2000	
	French firms	Canadian firms
Initial search for firm-year 1996–2000 available on Disclosure Disks 2001	4450	2855
Less		
Additional data requirements		
Firms in finance industry ^b	(850)	(380)
	3600	2475
Firms with missing data in the empirical tests	(1926)	(1005)
Final sample	1674	1470

^aOriginal accounting data base taken from “Disclosure Disks 2001” consists of 4450 (French) and 2855 (Canadian) firm-year observations during the period 1996–2000. Financial firms in Division H (two-digit SIC codes 60–67) were excluded because the types of accruals found in financial firms differ substantially from accruals in other industries. Of 3600 (French) and 2475 (Canadian) non-financial firm-year observations, 1926 of the French and 1,005 of the Canadian firms had insufficient data on “Disclosure Disks” to enable us to estimate the earnings-management motives (EMM) model, leaving us with a final sample of 1674 (French) and 1470 (Canadian) firm-year observations.

^bFirms in the finance industry are firms within Division H: Finance, insurance and real estate matched with the following two-digit SIC codes industries: # 60 Depository institutions; # 61 Non-depository credit institutions; #62 Security and commodity brokers, dealers, exchanges, and service; # 63 Insurance carriers; # 64 Insurance agents, brokers and service; # 65 Real estate; # 67 Holding and other investment offices.

(downwards), the more likely the managers are to choose income-increasing (–decreasing) accruals.

3. Methodological approach

3.1. Sample selection

We consider a global sample of French and Canadian firms from eight non-financial industry divisions.³ We discarded the financial industry division because it has specific characteristics which are endowed with the industry’s own accounting and financial rules. The type of accruals found in financial institutions differs substantially from accruals in other industries.

Table 1 presents the sample selection. The original accounting database taken from “Disclosure Disks 2001” consists of 4450 French and 2855 Canadian firm-year observations over the period 1996–2000. As indicated, financial firms in Division H (two-digit SIC codes 60–67) were excluded. This led to 850 French firms and 380 Canadian firms being excluded. Of 3600 French non-financial firm-year observations, 1926 were excluded because there was insufficient data on “Disclosure” to enable us to estimate the earnings management motives model. Similarly, out of 2475 Canadian observations,

³ Divisions (A, B, C, ..., I) include, respectively (01–09; 10–14; 15–17; 20–39; ...; 70–89) two digit codes. See Table 2.

Table 2
Industry distribution of sample firms

Industry division distribution ^a	Industry two-digit SIC code	French sample		Canadian sample		Entire French/ Canadian sample	
		Number of firms in sample	Frequency in sample	Number of firms in sample	Frequency in sample	Number of firms in sample	Frequency in sample
		<i>N</i>	% of total	<i>N</i>	% of total	<i>N</i>	% of total
Panel A: Agriculture, forestry, and fishing	01–09	13	0.78	13	0.88	26	0.83
Panel B: Mining	10–14	28	1.67	454	30.88	482	15.33
Panel C: Construction	15–17	47	2.81	20	1.36	67	2.13
Panel D: Manufacturing	20–39	998	59.62	495	33.67	1493	47.49
Panel E: Transportation, communication, electric, gas, and sanitary services	40–49	100	5.97	220	14.97	320	10.18
Panel F: Wholesale trade	50–51	124	7.41	58	3.95	182	5.79
Panel G: Retail trade	52–59	126	7.53	72	4.90	198	6.30
Panel I: Services	70–89	238	14.21	138	9.39	384	11.95
Total		1674	100	1470	100	3144	100

^aIn our selected sample, industry divisions consist of Division A: Agriculture, forestry, and fishing (two-digit SIC codes 01–09); Division B: Mining (two-digit codes 10–14); Division C: construction (two-digit codes 15–17); Division D: Manufacturing (two-digit codes 20–39); Division E: Transportation, communication, electric, gas, and sanitary services (two-digit codes 40–49); Division F: Wholesale trade (two-digit codes 50–51); Division G: Retail trade (two-digit codes 52–59); Division I: Services (two-digit codes 70–89).

1005 were excluded. This left us with a final sample of 1674 French and 1470 Canadian firm-year observations.

Table 2 exhibits the distribution of the French and Canadian selected samples by industry group.

3.2. The estimation method of discretionary accruals

We focus on discretionary accruals as the proxy of earnings management. Our accrual model builds on an extended version of the modified Jones (*m-J*) model. Basically, we adjust the changes in revenues for the change in accounts receivable to correct for the possibility that managers could have manipulated revenues by changing credit terms. Following Larker and Richardson (2004), we include two additional independent variables that are shown to be correlated with measures of discretionary accruals. First, we include current operating cash flows (CFO) to control for firm performance. Prior work shows that measures of discretionary accruals are more likely to be misspecified for firms with extreme levels of performance (Dechow et al., 1995). Second, we include the book-to-market ratio (BM). BM is measured as the ratio of the book value of common equity to the market capitalization. We expect to see large accruals for growing firms (McNihols, 2000, 2002). BM is included as a proxy for growth opportunities in the firm’s operations.

In contrast to most prior empirical studies on earnings management (e. g., Guidry et al., 1999; Leuz et al., 2003; Sloan, 1996), we follow Collins and Hribar (2000) and Hribar and Collins (2002) and directly compute total accruals as the difference between earnings and cash flow from operations taken from the statement of cash flow.⁴ Moreover, we used panel data over the period 1996–2000 for each sample of French and Canadian firms matched by two-digit SIC code. Each observation of our Canadian and French samples has two dimensions (firm, year). The estimation method of the modified Jones model using panel-regression techniques is appropriate.⁵ Further, the number of Canadian and French firms changes during the period of analysis. At the firm level, some data are missing for one or several years. Therefore, the use of non-balanced panel-data techniques is adequate.

Specific regression estimates are made individually for each industry division sub-sample taken from the 1674 French and 1470 Canadian firm-year observations. Firms within the same industry division usually have a similar pattern of assets and generally have similar financial and legal incentives to manipulate accounting earnings. Considering sub-samples of firm-year observations that correspond to each industry division may reduce heteroscedasticity.

The advanced extended version of the modified Jones model is the following:

$$\text{TAC } ij, t = a0j + a1j \text{ PPEG } ij, t + a2j \Delta \text{REVC } ij, t + a3j \text{ CFO } ij, t + a4j \text{ BM } ij, t + e \text{ } ij, t$$

$\text{TAC}_{ij,t}$ is total accruals for firm i in industry j in year t , computed as the difference between net income before extraordinary items and cash flow from operations; $\text{PPEG}_{ij,t}$ is gross property, plant, and equipment for firm i in industry j in year t ; $\Delta \text{REVC}_{ij,t}$ is the change in revenues less the change in accounts receivable for firm i in industry j between year $t-1$ and t ; $\text{CFO}_{ij,t}$ is cash flow from operation; $\text{BM}_{ij,t}$ is book-to-market ratio computed as the book value of common equity divided by market capitalization at the end of the fiscal year. i denotes firm index for the number of firms within portfolio $t=1996, 1997, \dots, 2000$; and j denotes firm index for the number of firms within industry $j=A, B, C, D, E, F, G$, and I . All variables, except $\text{BM}_{ij,t}$, are deflated by lagged total assets.

Discretionary accruals (DAC) are residuals obtained from the extended version of the modified Jones model. The estimates of $a0j$, $a1j$, $a2j$, $a3j$ and $a4j$ are those obtained from the extended version of the Jones model. First, we estimate the extended version of the Jones model:

$$\text{TAC } ij, t = a0j + a1j \text{ PPEG } ij, t + a2j \Delta \text{REV } ij, t + a3j \text{ CFO } ij, t + a4j \text{ BM } ij, t + e \text{ } ij, t \quad (1)$$

Where, $\text{REV}_{ij,t}$ is the change in revenues for firm i in industry j between year $t-1$ and t .

⁴ Most research studies on earnings management estimate cash flows as the period-to-period change in current asset and current liabilities, adjusted for changes in cash and reclassification of currently maturing portions of long-term debt. Total accruals include changes in the non-cash working-capital accounts plus depreciation expense. Hribar and Collins (2002), Revsine, Collins, and Johnson (2002), and Drtina and Largay (1985) demonstrate that this balance-sheet approach to computing accruals can lead to serious errors.

⁵ The Breush and Pagan Lagrangian Multiplier test statistic for homogeneity is significant at a level of 0.01 for all industry division subsamples. Homogeneity is rejected. Therefore, the use of appropriate panel-estimation techniques is necessary.

In addition, the Hausman specification test is used to choose between fixed-effects or random-effects models along with industry-divisions regressions.

Table 3

Panel regression fit statistics using the extended version of *m-J* model and distributional properties of measures of discretionary accruals^a

Panel A: Mean coefficient estimates for the extended version of *J-m* model based on eight industry divisions^b

Variable	French sample	Canadian sample
	Coefficient estimate (<i>p-value</i>)	Coefficient estimate (<i>p-value</i>)
Intercept	0.023 (0.000)***	−0.025 (0.000)***
PPEG	−0.032 (0.298)	−0.043 (0.009)***
ΔREVC	0.021 (0.000)***	0.011 (0.021)**
CFO	−0.772 (0.000)***	−0.681 (0.000)***
BM	−0.004 (0.024)**	−0.035 (0.098)*
<i>N</i>	1674	1470
<i>R</i> square overall	0.6700	0.5321

Panel B: Distributional statistics for 1674 French and 1470 Canadian firm-year observations

Variable		Mean	SD	Q1	Median	Q3
DAC	France	0.000	0.055	−0.019	0.000	0.025
	Canada	0.002	0.127	−0.027	0.014	0.049
DAC	France	0.035	0.042	0.010	0.022	0.044
	Canada	0.068	0.107	0.017	0.038	0.079

^aCoefficient estimates are averages from the respective 8 industry division's panel regression. The *p-values* are reported in parenthesis. The estimates of *a*0, *a*1, *a*2, *a*3, *a*4 are those obtained from the following original Jones model CFO and BM.

$$TAC_{ij,t} = a_0j + a_1 PPEG_{ij,t} + a_2 \Delta REV_{ij,t} + a_3 CFO_{ij,t} + a_4 BM_{ij,t} + e_{ij,t}$$

(Eq. (1))

TAC_{*ij,t*} is total accruals for firm *i* in industry *j* in year *t*, computed as the difference between net income before extraordinary items and cash flow from operations; PPEG_{*ij,t*} is gross property, plant, and equipment for firm *i* in industry *j* in year *t*; ΔREV_{*ij,t*} is the change in revenues for firm *i* in industry *j* between year *t* − 1 and *t*; CFO_{*ij,t*} is cash from operation; BM_{*ij,t*} is book-to-market ratio computed as the book value of common equity divide by market capitalization at the end of the fiscal year. *i* denotes firm index for the number of firm within portfolio *t*=1996, 1997,..., 2000 and *j* denotes firm index for the number of firms within industry *j*=A, B, C, D, E, F, G, and I. All variables, except BM_{*ij,t*}, are deflated by lagged total assets.

The assumption that all the sample observations are homogeneous with respect to the relation between PPEG, ΔREV, CFO, BM and TAC is rejected. The Breush and Pagan Lagrangian multiplier test statistics is significant at the 0.01 level for all industry regressions. Therefore, the use of panel-estimation techniques is appropriate.

Hausman specification test is used for each industry regression to indicate the estimation of the extended version of *m-J* model to be under the fixed-effects hypothesis or random-effects hypothesis.

DAC is discretionary accruals. Discretionary accruals are residuals obtained from the extended version of the *m-J* model. The only modification relative to Eq. (1) is that the change in revenues is adjusted for the change in accounts receivable (ΔREVC).

|DAC| is absolute value of discretionary accruals.

^bIn our selected sample, industry divisions consist of Division A: Agriculture, forestry, and fishing (two-digit SIC codes 01–09); Division B: Mining (two digit codes 20–39); Division C: construction (two-digit codes 15–17); Division D: Manufacturing (two-digit codes 20–39); Division E: Transportation, communication, electric, gas, and sanitary services (two-digit codes 40–49); Division F: Wholesale trade (two-digit codes 50–51); Division G: Retail trade (two-digit codes 53–59); Division I (two-digit SIC codes 70–89). The complete French sample comprises 1674 firm-year observations during 1996–2000. The complete Canadian sample comprises 1470 firm-year observations during the same period. See Table 2 for industry distribution of French and Canadian sample firms.

*Significant at the 0.10 level (*p-value*<0.10). **Significant at the 0.05 level (*p-value*<0.05). ***Significant at the 0.01 level (*p-value*<0.01).

Table 3 (Panel A) summarizes mean coefficient estimates for the extended version of the modified Jones model based on panel regressions over eight industry divisions.

Consistent with prior research we find a negative coefficient on PPEG and a positive coefficient on REVC. We also find that CFO and BM are both negatively associated with total accruals. The explanatory power is high, with the mean R^2 overall 67% for the French sample and 53.21% for the Canadian sample.

Secondly, using the estimated coefficients ($\hat{a}0j$, $\hat{a}1j$, $\hat{a}2j$, $\hat{a}3j$, $\hat{a}4j$) from industry division regressions (Eq. (1)), we evaluate the non-discretionary component of total accruals, NDAC, for each sample of French and Canadian firm-year observation (ij, t)

$$\text{NDAC } ij, t = \hat{a}0j + \hat{a}1j \text{ PPEG } ij, t + \hat{a}2j \Delta \text{REVC } ij, t + \hat{a}3j \text{ CFO } ij, t + \hat{a}4j \text{ BM } ij, t \quad (2)$$

Finally, the proxy for discretionary accruals consists of the accruals prediction error. The discretionary accruals proxy is obtained by calculating the difference between total accruals and estimated non-discretionary accruals.

$$\text{DAC } ij, t = \text{TAC } ij, t - \text{NDAC } ij, t \quad (3^a)$$

Therefore,

$$\text{DAC } ij, t = \text{TAC } ij, t - (\hat{a}0j + \hat{a}1j \text{PPEG } ij, t + \hat{a}2j \Delta \text{REVC } ij, t + \hat{a}3j \text{CFO } ij, t + \hat{a}4j \text{BM } ij, t) \quad (3^b)$$

In the tests that follow, we examine both directional values for discretionary accruals DAC and their absolute values $|\text{DAC}|$. Following Larker and Richardson (2004), if the earnings management is directional, the research design should focus on signed measures of discretionary accruals. For example, issuing equity creates an incentive to engage in income-increasing earnings management. However, if the earnings management is non-directional, the absolute value of discretionary accruals is appropriate. For example, being listed on a foreign stock market creates less incentive to engage in both income-increasing and income-decreasing behavior. The research design should focus on the absolute value of discretionary accruals.

For the 1674 French and 1470 Canadian firm-year observations used to generate our measures of discretionary accruals (Table 3, Panel B), the mean value of discretionary accruals is zero by construction (discretionary accruals are residuals from a regression model).

3.3. Earnings-Management Motives model (EMM)

To test for the importance of specific motives for earnings management within Canadian and French environments, we develop an Earnings-Management Motives (EMM) model that takes into consideration differences in motives between Canada and France. Our EMM model builds on panel regressions with interactive variables for each country. We regress the test and control variables against directional and non-directional measures of earnings management. The first measure, signed DAC, denotes the direction of earnings management.

The second measure, $|\text{DAC}|$, represents the magnitude of discretionary accruals regardless of the direction of earnings-management activity. The earnings-management motives model (EMM) is presented as follows:

$$\begin{aligned} \text{EARNMAN}_{i,t} = & a_0 + a_1 \text{EQUISSUE_COUNTRY}_{i,t} \\ & + a_2 \text{DEBT_COUNTRY}_{i,t} + a_3 \text{TAX_COUNTRY}_{i,t} \\ & + a_4 \text{EQUISSUE}_{i,t} + a_5 \text{DEBT}_{i,t} + a_6 \text{TAX}_{i,t} \\ & + a_7 \text{LOGTA}_{i,t} + a_8 \text{DIR}_{i,t} + a_9 \text{AUDIT}_{i,t} + a_{10} \text{COT}_{i,t} \\ & + a_{11} \text{SMLOSS}_{i,t} + a_{12} \text{POTSMTH}_{i,t} + a_{13} \text{IND}_{i,t} + e_{i,t}; \end{aligned}$$

Where

EARNMAN denotes earnings-management measures: DAC is discretionary accruals and $|\text{DAC}|$ is the absolute value of discretionary accruals.

EQUISSUE_COUNTRY Interactive variable EQUISSUE**COUNTRY*, where *COUNTRY* is a dummy variable that takes the value of one if the firm-year observation is Canadian, zero otherwise.

DEBT_COUNTRY Interactive variable DEBT**COUNTRY*.

TAX_COUNTRY Interactive variable TAX**COUNTRY*.

EQUISSUE i,t Issuing equity, dummy. One if firm i in year t has proceeded to equity offerings either to be initially introduced to the stock market or to be used subsequently to increase its equity by public offerings, zero otherwise.

DEBT i,t Leverage of firm i in year t , proxied by the ratio of debt over equity $\frac{\text{STDebt\&CurrentPortionLTDebt}(\#3051) + \text{LTDebt}(\#3251)}{\text{CommonEquity}(\#7221)}$;

TAX i,t Effective tax rate of firm i in year t , proxied by the ratio $\frac{\text{IncTaxes}(\#1451)6}{\text{PttaxInc}(\#1401)}$;

LOGTA i,t Size of firm i in year t , proxied by natural logarithm of total assets.

DIR i,t Sum of equity percentage detained by managers having more than 5% ownership.

AUDIT i,t Audit quality for firm i in year t , dummy. One if firm i in year t has a Big Six auditor, zero otherwise;

COT i,t Foreign stock exchange listing, dummy. One if firm i in year t is listed on a foreign stock exchange, zero otherwise;

SMLOSS i,t Small losses avoidance, dummy. One if firm i in year t reports small profits, i.e., the company is located in the range of [0.00; 0.01] of companies ranked by the ratio (Net earnings/Total assets), zero otherwise;

POTSMTH i,t Potential to smooth earnings for firm i in year t , computed as standard deviation of operating income between two consecutive years $t-1$ and t scaled by the mean of operating income between the same two consecutive years $t-1$ and t , with $t=1995, 1996, 1997, 1998, 1999, 2000$.

IND i,t ⁷ Summarizes dummies that represent industry divisions included in the EMM model. For each industry division (e. g. AGR: Agriculture) the dummy variable takes the value of one if the firm belong to that industry (AGR), zero otherwise;

⁶ Cf. "Disclosure" data base.

⁷ See Table 6 Footnotes for more detailed description of dummies that represent industry divisions in the EMM model.

Because earnings-management motives can drive directional and/or non-directional discretionary accruals, we provide additional separate analyses for French and Canadian samples including positive and negative discretionary accruals to determine whether incentives for earnings management vary depending on the sign of discretionary accruals.

4. Empirical results

4.1. Descriptive statistics of earnings-management motives

Correlations among quantitative independent variables related to our EMM model are provided in Table 4. Pearson correlations are very weak, suggesting the absence of multicollinearity between the independent variables of our EMM model.

Table 5 presents descriptive statistics of the test and control variables for the French and Canadian samples. Descriptive statistics of continued variables are provided in Panel A, whereas descriptive statistics of discrete variables are shown in Panel B. Most entries in the table are descriptive and self-evident. As expected, the mean of debt-to-equity ratio, DEBT, for French firms is statistically higher than for Canadian firms (Panel A). This confirms that the finance pattern of French firms relies to a large extent on bank loans compared to Canadian firms. Conversely, Panel B reports that the mean proportion of issuing equity, EQUISSUE, for Canadian firms is substantially higher than for French firms. This corroborates our predictions that capital markets are the primary source of capital for Canadian companies. However, the mean and median of effective tax rates, TAX, for French firms and for Canadian firms are very similar (Panel A). This may, apparently, reflect a lack of any particular impact of the effective tax rate on earnings-management behavior for French firms compared to Canadian firms.

Managers' ownership, DIR, for French companies tends to be concentrated. The mean of managers' ownership is evidently significantly more important for French companies than for Canadian companies (Panel B). Managers' ownership may also reveal ownership characteristics. It indicates the extent to which managers and owners are separated. French companies rely less than Canadian companies on the capital market as a source of finance. Panel A exhibits that the Big Six auditors, AUDIT, mean proportion is consistently higher for Canadian firms than for French firms. The vast majority of Canadian companies hire Big Six auditors while fewer French companies do. This reflects a specific characteristic of the French environment. French firms still resort to local auditors. Further, there is a substantially higher mean proportion of Canadian firms, COT, listed on a foreign capital market in Panel B. Moreover, Panel B shows that the potential to smooth earnings, POTSMTH, is higher for Canadian firms than for French ones. However, Panel A outlines a significantly higher mean proportion of small-losses avoidance, SMLOSS, for French firms compared to Canadian firms.

4.2. Panel regressions analysis

Table 6 presents regression results of the EMM model we tested over the entire sample of 3144 French and Canadian firm-year observations. Panel A uses DAC as a directional measure of earnings-management behavior while Panel B uses |DAC| as a non-directional

Table 4

Pearson correlations for quantitative independent variables related to earnings-management motives model

	DEBT	TAX	LOGTA	DIR	POTSMTH
<i>Panel A: Global French and Canadian sample of 3144 firm-year observations</i>					
DEBT	1.000				
TAX	−0.002 (0.899)	1.000			
LOGTA	0.008 (0.619)	−0.021 (0.228)	1.000		
DIR	0.025 (0.206)	−0.023 (0.234)	0.026 (0.182)	1.000	
POTSMTH	−0.004 (0.811)	−0.003 (0.856)	−0.023 (0.197)	0.013 (0.521)	1.000
<i>Panel B: French sample of 1674 firm-year observations</i>					
DEBT	1.000				
TAX	−0.002 (0.942)	1.000			
LOGTA	0.001 (0.9528)	−0.005 (0.8211)	1.000		
DIR	−0.007 (0.770)	−0.037 (0.129)	−0.032 (0.103)	1.000	
POTSMTH	−0.007 (0.766)	−0.003 (0.878)	−0.004 (0.864)	0.026 (0.281)	1.000
<i>Panel C: Canadian sample of 1470 firm-year observations</i>					
DEBT	1.000				
TAX	−0.015 (0.515)	1.000			
LOGTA	0.005 (0.841)	0.014 (0.555)	1.000		
DIR	0.007 (0.779)	−0.034 (0.293)	0.025 (0.513)	1.000	
POTSMTH	−0.002 (0.931)	−0.016 (0.508)	−0.010 (0.670)	0.012 (0.713)	1.000

This table shows the Pearson correlation coefficients (first line) and the *p*-values in parentheses (second line).

DEBT: Debt-to-equity ratio. TAX: Effective tax rate. LOGTA: Firm size. DIR: Sum of equity percentage detained by director's having more than 5%. POTSMTH: Potential to smooth earnings.

measure of earnings-management behavior. Table 7 provides additional results from separate analyses for 1674 French and 1470 Canadian firm-year observations including positive (Panel C) and negative (Panel D) discretionary accruals.

The Breush and Pagan Lagrange multiplier-test statistic is significant at the 0.01 level in Table 6 (Panels A and B) and Table 7 (Panels A, B, C, and D). The assumption that all the sample observations are homogenous with respect to the relation between earnings-management motives and discretionary-accruals activity is rejected. Therefore, we use appropriate panel-estimation techniques. The Hausman specification test is used to choose between the fixed-effects or random-effects model along with the entire sample (Table 6) and separate samples (Table 7) of French and Canadian firm-year observations. The Hausman specification test statistic is not statistically significant at the level of 0.05 in

Table 5

Descriptive statistics on the test and control variables related to earnings management motives (EMM) model

Panel A: Distributional statistics and univariate difference of continued variables for 1674 French and 1470 Canadian firm-year observations

Variable		Mean	SD	Q1	Median	Q3	<i>t</i> -statistic (<i>p</i> -value)
DEBT	France	0.977	2.590	0.245	0.581	1.162	3.639
	Canada	0.609	3.064	0.125	0.477	0.975	(0.000)***
TAX	France	0.305	0.464	0.178	0.344	0.408	0.501
	Canada	0.293	0.408	0.096	0.342	0.428	(0.6164)
LOGTA	France	12.829	1.996	11.395	12.435	14.159	1.877
	Canada	12.669	1.692	11.511	12.584	13.856	(0.061)*
DIR	France	0.594	0.227	0.450	0.620	0.760	28.271
	Canada	0.3102	0.251	0.110	0.254	0.487	(0.000)***
POTSMTH	France	0.207	29.877	0.032	0.153	0.425	-1.292
	Canada	2.220	54.824	0.038	0.162	0.399	(0.196)

Panel B: Proportion and univariate difference of discrete variables for 1674 French and 1470 Canadian firm-year observations

Variable		Mean proportion	<i>z</i> -statistic (<i>p</i> -value)
EQUISSUE	France	0.073	-7.682
	Canada	0.161	(0.000)***
AUDIT	France	0.537	-27.376
	Canada	0.967	(0.000)***
COT	France	0.266	-4.741
	Canada	0.347	(0.000)***
SMLOSS	France	0.082	2.801
	Canada	0.056	(0.005)***

DEBT: Debt-to-equity ratio. TAX: Effective tax rate. LOGTA: Firm size. DIR: Sum of equity percentage detained by directors having more than 5%. POTSMTH: Potential to smooth earnings.

EQUISSUE: Dummy variable one if the firm proceeds to equity offerings either to be initially introduced to the stock market or subsequently to increase its equity by public offerings, zero otherwise. AUDIT: Dummy variable one if the auditor is Big Six auditor, zero otherwise. COT: Dummy variable one if firm is listed on a foreign stock exchange, zero otherwise. SMLOSS: Dummy variable one if firm reports small profits, zero otherwise.

In Panel A, univariate difference of continued variables between the French and Canadian samples is tested through the mean comparison test of independent samples.

In Panel B, univariate difference of discrete variables between the French and Canadian samples is tested through the proportion comparison test of independent samples.

* Significant at the 0.10 level (*p*-value < 0.10).

** Significant at the 0.05 level (*p*-value < 0.05).

*** Significant at the 0.01 level (*p*-value < 0.01).

Table 6 (Panels A and B) and Table 7 (Panels A, B, C, and D). Hence, we estimate our EMM model using the random-effects hypothesis.

Tables 6 and 7 show that variables of our EMM regression model are globally significant. The Wald Chi² test statistic is significant at a 0.05 level for both directional and non-directional measures of earnings management (Table 6, Panels A and B; Table 7, Panels A, B, C and D).

R² overall ranges from 0.056 to 0.1881 for directional discretionary accruals and is about 0.20 for non-directional discretionary accruals.

Consistent with our predictions, Table 6 (Panels A and B) exhibits a significantly higher influence of debt-to-equity ratio and effective tax rate on both signed and absolute value of discretionary accruals for Canadian firms compared to French firms. The respective interactive variables DEBT_COUNTRY and TAX_COUNTRY show a negative and significant coefficient (Panels A and B). Conversely, the coefficient of the interactive variable EQUISSUE_COUNTRY is positive and significant (Panels A and B). As expected, issuing equity to be initially introduced to the stock market or subsequently to increase its equity by public offerings has a more substantial influence on both the signed and absolute value of discretionary accruals for Canadian firms than it does for French firms.

More specifically, Table 7 reports that the debt-to-equity ratio, DEBT, is positively associated with positive directional DAC (Panel C) and negatively associated with negative directional DAC (Panel D) for French firms. However, DEBT shows no significant association with earnings-management measures for Canadian firms (Panels A, B, C, D). Within the French environment, bank loans contribute heavily to an upward earnings management in order to avoid the violation of debt covenants. Further, managing earnings upwards represents a positive signal to lenders, particularly financial institutions, to

Table 6

Panel regressions of earnings-management measures on test and control variables based on the entire sample of 3144 French and Canadian firm-year observations^a

Variable	Panel A: EARNMAN = DAC	Panel B: EARNMAN = DAC
	Coefficient estimate (<i>p</i> -value)	Coefficient estimate (<i>p</i> -value)
INTERCEPT	-0.056 (0.004)***	0.158 (0.000)***
EQUISSUE_COUNTRY	0.016 (0.001)***	0.014 (0.040)**
DEBT_COUNTRY	-0.002 (0.000)***	-0.002 (0.000)***
TAX_COUNTRY	0.012 (0.019)**	-0.009 (0.063)*
EQUISSUE	0.031 (0.047)**	0.011 (0.087)*
DEBT	0.000 (0.000)***	0.000 (0.000)***
TAX	-0.001 (0.039)**	-0.001 (0.048)*
LOGTA	0.004 (0.081)*	-0.008 (0.000)***
DIR	0.000 (0.817)	-0.000 (0.222)
AUDIT	-0.005 (0.373)	-0.006 (0.262)
COT	-0.007 (0.132)	-0.001 (0.745)
SMLOSS	-0.010 (0.054)*	-0.011 (0.008)***
POTSMTH	-0.000 (0.872)	0.000 (0.873)
AGR	-0.005 (0.865)	0.000 (0.992)
MINING	-0.019 (0.816)	0.038 (0.000)***
CONST	-0.009 (0.566)	-0.007 (0.547)
TRANS	0.001 (0.946)	0.004 (0.529)
WHLES	0.005 (0.607)	-0.000 (0.973)
TRADE	-0.001 (0.937)	0.003 (0.708)
SERV	-0.004 (0.622)	0.183 (0.002)***
B-P Lagrange Multiplier test:		
Chi ² statistic	258.900 (0.000)***	241.520 (0.000)***
Hausman specification test:		
Chi ² statistic	12.450 (0.132)	7.480 (0.380)
Wald Chi ² statistic	96.31 (0.000)***	265.10 (0.000)***
R ² overall	0.1098	0.2132

continue providing firms with funds at favorable conditions. Moreover, the coefficient of DEBT is negative and significant in the case of downward earnings management (Panel D). Clearly, the debt-to-equity ratio does contribute to the management of earnings upwards. Contrary to the findings for French firms, the debt-to-equity ratio is found to have no major impact on earnings-management behavior for Canadian firms. The French environment seems to give more credit to the debt hypothesis than does the Canadian environment.

Although the effective tax rate is not statistically different between Canadian and French firms (Table 5, Panel A), Table 6 (Panels A and B) exhibits, as expected, a substantially higher impact of effective tax rate on earnings management direction and magnitude for French firms than for Canadian firms. The influence of the interactive variable

Notes to Table 6:

^aThe earnings-management motives (EMM) model tested over the entire French and Canadian sample is presented as follows:

$$\begin{aligned} \text{EARNMAN}_{i,t} = & a0 + a1 \text{EQUISSUE_COUNTRY}_{i,t} + a2 \text{DEBT_COUNTRY}_{i,t} \\ & + a3 \text{TAX_COUNTRY}_{i,t} + a4 \text{EQUISSUE}_{i,t} + a5 \text{DEBT}_{i,t} \\ & + a6 \text{TAX}_{i,t} + a7 \text{LOGTA}_{i,t} + a8 \text{DIR}_{i,t} + a9 \text{AUDIT}_{i,t} \\ & + a10 \text{COT}_{i,t} + a11 \text{SMLOSS}_{i,t} + a12 \text{POTSMTH}_{i,t} \\ & + a13 \text{AGR}_{i,t} + a14 \text{MINING}_{i,t} + a15 \text{CONST}_{i,t} + a16 \text{TRANS}_{i,t} \\ & + a17 \text{WHLES}_{i,t} + a18 \text{TRADE}_{i,t} + a19 \text{SERV}_{i,t} + e_{i,t}; \end{aligned}$$

EARNMAN represents earnings management measures: DAC is discretionary accruals and |DAC| is absolute value of discretionary accruals.

EQUISSUE_COUNTRY is the interactive variable EQUISSUE* COUNTRY. DEBT_COUNTRY is the interactive variable DEBT* COUNTRY. TAX_COUNTRY is the interactive variable TAX* COUNTRY; where COUNTRY is a dummy variable that takes the value of one if the firm-year observation is Canadian, zero otherwise. EQUISSUE: dummy variable, one if the firm proceeds to equity offerings either to be initially introduced to the stock market or subsequently to increase its equity by public offerings, zero otherwise. DEBT: debt to equity ratio. TAX: effective tax rate. LOGTA: firm size. DIR: sum of equity percentage detained by directors having more than 5%. AUDIT: dummy variable, one if the auditor is Big Six auditor, zero otherwise. COT: dummy variable, one if firm is listed on a foreign stock exchange, zero otherwise. SMLOSS: dummy variable, one if firm reports small profits, zero otherwise. POTSMTH: potential to smooth earnings. AGR: dummy variable, one if the firm belongs to Agriculture, forestry, and fishing industry division, zero otherwise. MINING: dummy variable one, if the firm belongs to Mining industry division, zero otherwise. CONST: dummy variable, one if the firm belongs to Construction industry division, zero otherwise. TRANS: dummy variable, one if the firm belongs to Transportation, communication, electric, gas, and sanitary services industry division, zero otherwise. WHLES: dummy variable, one if the firm belongs to Wholesale trade industry division, zero otherwise. TRADE: dummy variable, one if the firm belongs to Retail trade industry division, zero otherwise. SERV: dummy variable, one if the firm belongs to Services industry division, zero otherwise.

Breusch and Pagan Lagrange Multiplier test is used to test for homogeneity of the entire sample of French and Canadian 3144 firm-year observations with respect to the relation between earnings management motives and both directional and non-directional measures of earnings management. B–P Lagrange Multiplier test statistic is significant at the 0.01 level in Panels A and B. Consequently, homogeneity is rejected and the use of Panel estimation techniques is appropriate.

Hausman specification test is used for the entire sample of French and Canadian 3144 firm-year observations to indicate the estimation of the Earnings-management Motives (EMM) model to be under the fixed effects hypothesis or random effects hypothesis. Hausman specification test statistic is not significant at the 0.10 level in Panels A and B. Consequently, we use random-effects estimation of the EMM model in Panels A and B.

The *p*-values are reported in parentheses below coefficient estimates.

*Significant at the 0.10 level (*p*-value < 0.10).

**Significant at the 0.05 level (*p*-value < 0.05).

***Significant at the 0.01 level (*p*-value < 0.01).

Table 7

Panel regressions of earnings-management measures on test and control variables based on separate samples of 1674 French and 1470 Canadian firm-year observations^a

Variable	Panel A: EARNMAN = DAC		Panel B: EARNMAN = DAC		Panel C: EARNMAN = DAC ⁺		Panel D: EARNMAN = DAC ⁻	
	French sample	Canadian sample	French sample	Canadian sample	French sample	Canadian sample	French sample	Canadian sample
	Coefficient estimate (p-value)	Coefficient estimate (p-value)	Coefficient estimate (p-value)	Coefficient estimate (p-value)	Coefficient estimate (p-value)	Coefficient estimate (p-value)	Coefficient estimate (p-value)	Coefficient estimate (p-value)
INTERCEPT	0.006 (0.771)	-0.122 (0.019)***	0.104 (0.000)***	0.222 (0.000)***	0.083 (0.000)***	0.105 (0.001)***	-0.115 (0.000)***	-0.343 (0.000)***
EQUISSUE	0.008 (0.407)	0.081 (0.000)***	0.009 (0.305)	0.076 (0.000)***	0.001 (0.706)	0.090 (0.000)***	-0.000 (0.475)	-0.002 (0.060)*
DEBT	0.000 (0.000)***	0.000 (0.240)	0.000 (0.000)***	0.000 (0.512)	0.001 (0.002)***	0.001 (0.609)	-0.000 (0.000)***	-0.000 (0.120)
TAX	-0.011 (0.012)**	0.000 (0.614)	-0.012 (0.009)***	-0.007 (0.206)	-0.005 (0.069)*	0.007 (0.305)	0.008 (0.034)**	0.005 (0.519)
LOGTA	-0.000 (0.812)	0.011 (0.024)**	-0.004 (0.000)***	-0.126 (0.000)***	-0.004 (0.000)***	-0.004 (0.047)**	0.006 (0.000)***	0.022 (0.000)***
DIR	0.000 (0.712)	0.001 (0.091)*	-0.000 (0.272)	0.000 (0.491)	-0.000 (0.670)	-0.001 (0.098)*	-0.001 (0.112)	0.002 (0.053)*
AUDIT	0.004 (0.341)	-0.423 (0.223)	0.000 (0.888)	-0.006 (0.808)	0.002 (0.720)	-0.014 (0.482)	0.000 (0.896)	0.001 (0.983)
COT	-0.009 (0.023)**	-0.008 (0.406)	-0.008 (0.946)	-0.001 (0.925)	-0.002 (0.608)	-0.002 (0.720)	-0.001 (0.861)	-0.018 (0.187)
SMLOSS	-0.010 (0.018)**	-0.011 (0.435)	-0.107 (0.001)***	-0.128 (0.230)	0.111 (0.054)*	0.015 (0.173)	-0.010 (0.016)**	-0.012 (0.475)
POTSMTH	-0.000 (0.411)	0.000 (0.397)	0.000 (0.471)	-0.000 (0.418)	-0.000 (0.717)	-0.000 (0.687)	-0.000 (0.478)	-0.000 (0.400)
AGR	-0.028 (0.248)	0.038 (0.618)	0.019 (0.248)	-0.034 (0.536)	0.017 (0.434)	-0.017 (0.674)	0.019 (0.282)	0.019 (0.601)
MINING	-0.016 (0.290)	0.004 (0.699)	0.072 (0.000)***	0.033 (0.000)***	0.084 (0.000)***	0.023 (0.004)***	-0.052 (0.000)***	-0.052 (0.005)***
CONST	0.001	-0.016	-0.008	-0.022	-0.008	-0.029	0.005	0.025

TRANS	(0.929) -0.006 (0.871)	(0.687) 0.002 (0.902)	(0.355) 0.001 (0.860)	(0.466) 0.005 (0.628)	(0.513) -0.000 (0.973)	(0.517) -0.002 (0.876)	(0.649) -0.009 (0.279)	(0.598) -0.041 (0.110)
WHLES	-0.001 (0.880)	0.016 (0.592)	0.004 (0.466)	-0.010 (0.643)	0.005 (0.408)	-0.008 (0.660)	-0.006 (0.357)	0.018 (0.715)
TRADE	-0.001 (0.863)	0.012 (0.620)	-0.009 (0.740)	0.006 (0.722)	-0.004 (0.502)	0.012 (0.478)	-0.005 (0.532)	-0.029 (0.403)
SERV	-0.004 (0.533)	0.006 (0.724)	0.003 (0.427)	0.052 (0.000)***	0.002 (0.723)	0.063 (0.000)***	-0.006 (0.211)	-0.042 (0.117)
B-P Lagrange Multiplier test: Chi ² statistic	278.440 (0.000)***	51.620 (0.000)***	205.58 (0.000)***	43.37 (0.000)***	212.20 (0.000)***	49.39 (0.000)***	42.95 (0.000)***	29.52 (0.000)***
Hausman specification test: Chi ² statistic	13.870 (0.0852)	9.490 (0.3027)	5.360 (0.7190)	6.760 (0.5632)	14.940 (0.060)*	8.990 (0.3430)	5.47 (0.706)	7.24 (0.5115)
Wald Chi ² statistic	80.520 (0.000)***	29.27 (0.022)**	194.24 (0.000)***	127.30 (0.000)***	88.93 (0.000)***	85.31 (0.000)***	126.20 (0.000)***	56.77 (0.000)***
R ² overall	0.0560	0.0631	0.1513	0.1891	0.1564	0.1799	0.1854	0.1881
Chow test:								
Fisher statistic	2522.53 (0.000)***	2303.47 (0.000)***	1264.37 (0.000)***	1049.14 (0.000)***				

Notes to Table 7:

^aThe Earnings-management Motives (EMM) model tested separately over the French and Canadian samples is presented as follows:

EARNMAN $i,t = a_0 + a_1$ EQUISSE $i,t + a_2$ DEBT $i,t + a_3$ TAX $i,t + a_4$ LOGTA $i,t + a_5$ DIR $i,t + a_6$ AUDIT $i,t + a_7$ COT $i,t + a_8$ SMOLOSS $i,t + a_9$ POTSMTH $i,t + a_{10}$ AGR $i,t + a_{11}$ MINING $i,t + a_{12}$ CONST $i,t + a_{13}$ TRANS $i,t + a_{14}$ WHLES $i,t + a_{15}$ TRADE $i,t + a_{16}$ SERV $i,t + a_{17}$ i,t

EARNMAN represents earnings management measures; DAC is discretionary accruals; |DAC| is absolute value of discretionary accruals; DAC⁺ is positive discretionary accruals only; DAC⁻ is negative discretionary accruals only.

EQUISSE: dummy variable, one if the firm proceeds to equity offerings either to be initially introduced to the stock market or to subsequently increase its equity by public offerings, zero otherwise. DEBT: debt to equity ratio. TAX: effective tax rate. LOGTA: firm size. DIR: sum of equity percentage detained by directors having more than 5%. AUDIT: dummy variable, one if the auditor is big six auditor, zero otherwise. COT: dummy variable, one if firm is listed on a foreign stock exchange, zero otherwise. SMOLOSS: dummy variable, one if firm reports small profits, zero otherwise. POTSMTH: potential to smooth earnings. AGR: dummy variable, one if the firm belongs to Agriculture, forestry, and fishing industry division, zero otherwise. MINING: dummy variable, one if the firm belongs to Mining industry division, zero otherwise. CONST: dummy variable, one if the firm belongs to Construction industry division, zero otherwise. TRANS: dummy variable, one if the firm belongs to Transportation, communication, electric, gas, and sanitary services industry division, 0 otherwise. WHLES: dummy variable, one if the firm belongs to Wholesale trade industry division, zero otherwise. TRADE: dummy variable, one if the firm belongs to Retail trade industry division, zero otherwise. SERV: dummy variable, one if the firm belongs to Services industry division, zero otherwise.

Breusch and Pagan Lagrange Multiplier test is used to test for homogeneity of separate samples of 1674 French and 1470 Canadian firm-year observations with respect to the relation between earnings-management motives and both directional and non-directional measures of earnings management. B-P Lagrange Multiplier test statistic is significant at the 0.01 level in Panels A, B, C and D. Consequently, homogeneity is rejected and the use of panel-estimation techniques is appropriate.

Hausman specification test is used for separate samples of 1674 French and 1470 Canadian firm-year observations to indicate the estimation of the earnings-management motives (EMM) model to be under the fixed effects hypothesis or random effects hypothesis. Hausman specification test statistic is not significant at the 0.05 level in Panels A, B, C and D.

Consequently, we use random effects estimation of the EMM model in Panels A, B, C and D.

Chow test is used to test for global change in coefficients of the earnings-management motives (EMM) model between the French (1674 firm-year observations) and the Canadian (1470 firm-year observations) samples. Chow test statistic is significant at the 0.01 level in Panels A, B, C and D. Consequently, coefficients of the EMM model differ substantially between the French sample and the Canadian sample.

The *p-values* are reported in parentheses below coefficient estimates.

* Significant at the 0.10 level (*p-value* < 0.10).

** Significant at the 0.05 level (*p-value* < 0.05).

*** Significant at the 0.01 level (*p-value* < 0.01).

TAX_COUNTRY is negative and significant on both DAC and |DAC| over the entire sample of 3144 French and Canadian firm-year observations (Table 6). In addition, Table 7 reports a positive significant impact of TAX on both negative DAC (Panel D) and |DAC| (Panel B) over the 1674 French firm-year observations. There is, also, a negative association between the effective tax rate and (directional) positive discretionary accruals (Panel C). Hence, the effective tax rate drives more income-decreasing accruals and accruals for French firms. Because of the tight relationship between the French tax and financial-reporting systems, the effective tax rate is more significant for French firms than for Canadian firms in influencing income-decreasing accruals. However, Canadian managers are free from tax pressure. They are encouraged to increase income to preserve their human capital from management buyouts and hostile takeovers and to give a positive image of the firm, rather than to circumvent tax pressure through income-decreasing accruals.

In contrast to French firms, the influence of the interactive variable EQUISSUE_COUNTRY is positive and significant on both DAC and |DAC| over the entire sample of 3144 French-Canadian firm-year observations (Table 6, Panels A and B). Additionally, Table 7 outlines a positive, significant impact of EQUISSUE on both positive DAC (Panel C) and |DAC| (Panel B) over 1470 Canadian firm-year observations. There is also negative association between EQUISSUE and negative DAC (Panel D). Therefore, issuing equity to be initially introduced to the stock market or subsequently to increase its equity by public offerings has a more significant influence on earnings management direction and magnitude for Canadian firms than for French firms. EQUISSUE drives more income-increasing accruals and accruals of more important size for Canadian firms. The substantial association between EQUISSUE and earnings-management behavior corroborates the results obtained by Chtourou, Bédard, and Courteau (2001) for American firms. This may be due to the prominence of the role of the capital market, in Anglo-American countries, in enhancing financing through equity. Companies characterized by a diffuse ownership structure are more likely than owner-controlled firms to manage earnings, and do so frequently (Dempsey et al., 1993, p 481). Issuing equity to be initially introduced to the stock market or subsequently to increase its equity by public offerings, however, has no substantial influence on managing earnings upwards for French firms. Since bank loans are the major source of finance in this code-law country, there is demand to preserve a low-volatility income variable (Ball et al., 2000).

In Table 7, we find for both French and Canadian samples that the LOGTA coefficient is statistically negative when discretionary accruals are restricted to values greater than zero (Panel C) and statistically positive when discretionary accruals are restricted to values less than or equal to zero (Panel D). As expected, firm size contributes substantially to managing earnings downwards for French and Canadian firms. However, consistent with the Chtourou et al. (2001) study conducted for a sample of American firms, Panel B shows that the LOGTA coefficient is consistently negative for Canadian and French firms. In both samples, the firm size is linked to a lower magnitude of earnings-management behavior. This result may be due to supplementary controls available within large firms to reduce agency costs (Jensen & Meckling, 1976). These supplementary controls may reduce the extent of managers' discretionary behavior. Further, the contribution of firm size in reducing earnings-management magnitude may be due to the selection of our Canadian and French samples. Our study does not focus on a specific context of political costs where firms are subject to anti-

dumping investigations (Magnan, Nadeau, & Cormier, 1999), anti-trust investigations (Makar & Alam, 1998), environmental crises (Labelle & Thibault, 1998), the Gulf crisis (Han & Wang, 1998), or international trade-commission investigations (Jones, 1991). The firm-size effect on earnings-management magnitude is more often seen within similar contexts.

To the extent that managers may be restrained from manipulating discretionary accruals upwards if they maintain a high concentration of equity, Table 7 (Panel C) shows the managers' ownership coefficient is negative for both Canadian and French samples. However, the DIR coefficient is significant only for Canadian firms. A high concentration of equity may reduce agency costs between managers and owners (Berle & Means, 1932; Jensen & Meckling, 1976; Mork, Shleifer & Vishney, 1998) and, consequently, may constrain upwards earnings management. This finding confirms our expectation that in the Canadian environment the higher the managers' ownership, the less managers are inclined to choose income-increasing accruals.

Panel D reports that the DIR coefficient is positive for both Canadian and French firms. However, it is only significant for Canadian firms. This reveals that the higher managers' equity becomes, the more likely they are to choose income-decreasing accruals. This finding obtained for Canadian firms, may be due, at least in part, to the following reasons. First, as the percentage of equity detained by managers becomes larger, their interests are more likely to be aligned with those of the owners. In such case, firms are more inclined to manage earnings downwards. Dempsey et al. (1993) suggest that firms managed by owners resort to extraordinary expenses to understate earnings. Second, stock-option incentive mechanisms are widespread among Canadian firms. Canadian managers' compensation depends to a large extent on stock options. In a study of American managers, Backer, Denton, and Reitenga (2003) confirmed that high compensation based on stock options is significantly associated with downwards earnings management using discretionary accruals. In particular, managers understate earnings in periods leading up to the option-award date in order to minimize the exercise price of options. Moreover, Backer et al. (2003) find that this association is stronger when managers are able to publicly announce earnings prior to the option-award date. This result also confirms, for Canadian firms, that the higher the managers' ownership, the less managers are inclined to choose income-increasing accruals. Overall, DIR is significantly associated with directional earnings management for Canadian firms (Panel A). However, Panel B indicates that the DIR coefficient is not correlated with non-directional earnings management. Unlike Wartfield, Wild, and Wild (1995), we find no significant, positive relation between the managers' ownership concentration and the absolute value of discretionary accruals.

In contrast to the Canadian sample, Table 7 exhibits that the DIR coefficient for the French sample is not significant for Panels A, B, C, and D. This indicates that in the French environment managers' ownership concentration has only a weak impact on reducing earnings management upward. In France, equity is not diffused among public investors as in Canada. The capital market's role in providing finance is less important than banks which finance firms through loans. Agency problems, other than between managers and shareholders, are relevant in French firms, namely, between bankers and the firm.

As for audit quality, AUDIT represents a monitoring mechanism that may dissuade managers against earnings-management activities. However, the AUDIT coefficient is not significant for either Canadian or French samples (Table 7). Contrary to the Becker et al.

(1998) study of American firms and the Vander Bauwhede, Willekens, and Gaeremynk (2003) study of Belgium firms, but consistent with the Chtourou et al. (2001) study of American firms, there is a weak statistical and substantive relation between AUDIT and both directional and non-directional earnings-management measures. Our findings reveal that, within Canadian and French environments, Big Six (now Big Four) auditors have no substantial influence on constraining upwards (Panel C) and downwards (Panel D) earnings management. Panel B, also reveals that Big Six (now Big Four) auditors have no substantial influence to reduce the magnitude of earnings management. Recent scandals that affected many international audit firms (Arthur Anderson, Ernst and Young, KPMG, etc.) cast doubt on the assumed quality of Big Six (now Big Four) auditors.

In Table 7, we find that although the COT coefficient is negative for both Canadian and French samples, it is not significant for either directional or non-directional measures of earnings management. This indicates a very weak influence of foreign stock exchange listing in restraining upwards (Panel C), downwards (Panel D), or the intensity (Panel B) of earnings management for Canadian and French firms.

Table 7 exhibits that, for French firms, SMLOSS has a statistically negative relation with non-directional discretionary accruals (Panel B), a positive relation when discretionary accruals are restricted to values greater than zero (Panel C), and a negative relation when discretionary accruals are restricted to values less than or equal to zero (Panel D). Small-losses avoidance contributes to restraining earnings-management magnitude for French firms. The more small losses there are for French firms the less managers are inclined to choose income-decreasing accruals. However, small-losses avoidance has no substantial impact on earnings-management behavior for Canadian firms even though the SMLOSS coefficient is negative in Panel D and positive in Panel C. The tendency to manage earnings upwards in the presence of small losses is more pronounced for French firms than for Canadian firms.

Finally, the POTSMTH coefficient is not significant for either Canadian or French samples (Table 7). During the period of analysis, the potential for smoothing does not appear to contribute to earnings-management activity for any of Canadian or French samples.

An additional Chow test is used in Table 7 to test for global change in coefficients of the Earnings-Management Motives (EMM) model between the French (1674 firm-year observations) and the Canadian (1470 firm-year observations) samples. The Chow test statistic is significant at the 0.01 level in Panels A, B, C and D. Consequently, coefficients of the EMM model differ substantially between the French sample and the Canadian sample.

5. Conclusion

The purpose of this paper is to investigate factors that have the potential of influencing earnings-management activity with reference to the Anglo-American and Euro-Continental accounting models. This study outlines major differences between Canadian and French socio-economic environments and assesses their implications for earnings-management behavior. Our work presents evidence regarding the determinants of managerial-accounting discretion for global samples of Canadian and French firms. We used panel data of 1470 Canadian and 1674 French firm-year observations. Using alternate measure of earnings-management activity that capture the direction and extent of discretionary behavior, we performed an analysis based on a panel-regression model.

Findings provide evidence that initial public and subsequent equity offerings are strong motives for earnings management in Canadian firms. Hence, Canadian firms show specific incentives matched with a dynamic capital market. However, incentives for earnings management for French firms are specifically linked to contractual debt costs and the effective tax rate. We believe the results to be of interest to international investors, standard setters, regulators, and auditors.

A major concern regarding the interpretation of these results relates to the reliance placed on accrual-based measures of accounting choice. Despite the use of an extended version of the $m-J$ model, the possibility remains that misspecification of the accounting-choice proxy may underlie some of the observed relations.

Finally, although we attempt to reveal the opportunity for accounting discretion within two different socio-economic environments, i. e., Canada and France, some important determinants of managerial discretion have not been considered. In particular, no attempt has been made to control for the impact of differential corporate-governance mechanisms (outside directors, audit committees structure, etc.) on earnings-management practices.

Future research could further develop contractual, agency, and governance problems in other countries. Research on earnings-management determinants in different environments can only stand to enrich researchers' understanding of accounting-policy choice in their own environment.

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Book reviews

Accounting standards: True or false?, R.A. Rayman. Routledge, (2006). 230 pages, £19.99, \$35.82, ISBN: 0-415-37780-3

This interesting book considers whether the introduction of International Financial Reporting Standards (IFRSs) will close the expectation gap between what accounts are thought to represent and reality. However, the book considers issues much wider than that and is certainly thought provoking.

The Foreword is written by the Head of International Financial Reporting in Ernst and Young UK, Allister Wilson. His opening paragraph states that “close to 100 countries worldwide, including the entire European Union, (EU) now require the use of IFRSs by at least all listed companies” (p. 9). Further, he argues, a stark choice exists between IFRSs and U.S. GAAP. I am not necessarily convinced that the choice is so stark and certainly in the short-run I expect a great deal more variety than this dichotomy. First, the EU requirement is for IFRSs to be used in consolidated accounts only from 2005. Thus, each member state can decide whether to extend the use of IFRSs to individual accounts and to unlisted companies. For some states, local GAAP may be required in individual company accounts, especially where the financial accounts form the basis for tax assessment. Second, the United States and the EU are undertaking a convergence project to reduce diversity. This may lead the United States to move more towards principles-based standards than rules-based standards. It is possible, however, for IFRSs to be interpreted differently in the United States than in the EU. Third, the introduction of IFRSs in different countries around the world is not uniformly adopted, rather a variety of approaches is taken depending on a particular country or even on a particular standard. Thus, IFRSs have been adopted or adapted or a combination of both.

Back to the main body of the book. The author argues that “conventional accounting has a major flaw that has to be corrected. Instead of being based on undisclosed assumptions known to be false, accounting information needs to be based on disclosed assumptions believed to be true” (p. 9). The problem, he argues, is that accountants try to incorporate aspects of stewardship as well as efficiency and as such the book covers the concept of income and the theory of value and what the author believes to be the blind alley in which accounting-standards bodies are now trapped.

The author adopts a historical approach to the development of accounting to explain how we have got to where we are now and the arguments are in the context of the United Kingdom environment. For example, chapter one explains the stewardship aspect of accounting and the following chapter covers business accounting to explain how the industrial revolution led to the reporting of performance. So, for example, the author states (p. 19) that “the primary object [of accounting] was the detection and prevention of fraud and

error. Financial accounting therefore developed as a branch of applied law rather than as a branch of applied economics." For some countries, accounting did indeed develop as a branch of applied law but in others (for example, The Netherlands) accounting developed as a form of applied economics.

The problem that accounting faces is trying to assign measures of value to assets based on some sort of code (principles) rather than the transaction approach required for stewardship. Principles may necessitate retrospective adjustment because the validity of asset valuations often depends on the outcome of future events and because they are drawn up on a monetary unit that is unstable in terms of purchasing power. Of course, the latter criticism can also be levied against accounting for stewardship since currency is unstable over the normal arbitrary period of assessment of 12 months. The author argues that the blame for failures in the system rests with those who employ nonstandard techniques that may be described as "creative" or on business uncertainty or economic instability.

Part II of the book considers the measurement of income and value. If accounts are in some way to measure economic performance then measurement of income is vital. However, the author believes that consideration of the nature of income is distinctly missing from the work of the Accounting Standards Board in the United Kingdom, the FASB and the IASB. If income is to be the measure of economic performance then it must relate in some way to consumption, consumption being the object of economic activity. Chapter 4 discusses income and accounting profit and considers the contributions of Hicks (1939) and Fisher (1906). The chapter concludes by stating that the good news is that one of Hick's definitions of income corresponds with the traditional definition of accounting profit "... namely, the change in a firm's balance sheet value after allowing for contributions from and distributions to its owners. The bad news is that conventional balance sheet values are normally based on historical cost" (p. 44). This avoids the reality that for many years the United Kingdom has adopted a modified historical cost approach incorporating periodic revaluations of fixed assets.

The following chapter discusses the inflation-accounting debate although it is argued that attempts were made to stifle debate (p. 52). Rayman (p. 50) argues that inflation accounting received a mixed reception: "academics, presented with an endless supply of calculations to set for their students, were ecstatic. Professionals, responsible for doing the calculations themselves, were less enthusiastic." Frankly, I cannot remember the ecstasy I must have felt! The case against inflation accounting is summed up: "for stewardship reporting it is unnecessary; for performance reporting it is inadequate" (p. 51).

The discussion in chapter 6 is of historical cost and current cost and the concept of deprival value is that of Bonbright (1937), although the author correctly points out that this idea is based on work of Austrians, particularly Menger (1871), Bohm-Bawer (1888), and Wieser (1889). Given the concept of deprival value in terms of the relationship between NRV, PV, and RC, there are six possibilities for valuation and, therefore, the rules were arranged to accommodate these eventualities. However, what is pointed out by the author is that "deprival value," even if it can be measured accurately, has not been demonstrated to be an information requirement for financial reporting by any user group (see, for example, Whittington, 1983; Kay, 1977). This was a fundamental problem of the inflation-accounting debate. Once revised figures had been calculated, what meaning could be attached to such information? The contribution of Edwards and Bell (1961) is recognized as influencing the

FASB's Conceptual Framework Project towards a balance-sheet approach to recognition rather than performance. But the nature of income in terms of value change is dependent on measurement. Given that any definition of the economic concept of income relies on subjective assessments, the alternative provided by Edwards and Bell has some appeal. However, since value depends on the subjectivity of future dividend streams the correctness of estimations depends on the market and performance is measured by changes in market value. As a result, the IASB and the FASB have increasingly been interested in fair-value reporting. The author believes that fair-value accounting is a blind alley and illustrates this in the context of financial instruments. He is not intrinsically opposed to the use of fair values but rather that changes in fair values should be regarded as gains or losses. I have some sympathy with this. Given volatility in commodity and futures markets, how useful is it to measure them at a point in time at the balance-sheet date and then determine gains and losses and report them as such? Is the change in value between purchase and/or the signing of a futures contract an appropriate measure of gain? Is a company better or worse off as a result of the measurement of hypothetical transactions which do not in any way represent the economic significance of the realized transaction? For successful measurement, actual results should be close to expected results (Kaldor, 1955) and asset valuations based on future events makes the usefulness of accounts dependent on the future. An ancilliary problem is that with subjective valuations it becomes difficult to be consistent and may lead to auditor-opinion shopping.

Rayman attacks investment theory for its reliance on unrealistic assumptions such as perfect markets and argues that there cannot be a single cost of capital that embraces the investment opportunities, tax position, and dividend expectations of a multitude of shareholders. Given the many different economic outcomes, accounting standards must have great difficulty in establishing balance-sheet values. Even if these were possible, then the problem of measuring the return on capital employed is insurmountable. As such, he argues, "the system" needs to change so that the backward-looking measures of stewardship are clearly separated from the forward-looking measures of performance reporting. This requires a distinction between funds and value. And, further, that monetary figures in the accounts are symbols of volume and not measures of performance or value (p. 153). "Funds accounting remains the basis of the segregated system of record keeping and resource accounting for reporting on *stewardship*. The major innovation is the introduction of separate value accounts for reporting on performance" (p. 158). Rayman argues that the segregated system he advocates will close the expectation gap between what accounts actually mean and what the public believes them to mean. In addition, managers of public companies will be more accountable through the market than through additional regulation. This can be achieved through public disclosure of the rate of return managers are planning to achieve.

Segregation will lead to a transactions-based system based on historical costs whose purpose is to report on stewardship and whose transactions can be verified by auditors to assist the process of minimizing fraud and error. The balance sheet would show assets and liabilities at historical costs based on facts and alongside those values should be shown current values, either exit or entry, that are considered relevant for understanding.

In summary, it is my view that this book is worthy of reading since it is well-written, thought-provoking and timely, given moves to adopt and adapt IFRSs. The author not only

provides a critique of extant literatures but also advances possible solutions based on the distinction between funds and value.

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Accounting ethics, Ronald F. Duska, Brenda Duska, Blackwell Publishing, Malden, Massachusetts, USA (2003), li + 277 pages, £21.99, \$34.95 (pbk), ISBN: 0-631-21651-0

This book is a volume in Blackwell's Foundations of Business Ethics series. Books in this series, are authored by business ethicists and are intended to provide text materials for courses in business. Because of its major focus on official ethics pronouncements of regulatory and professional bodies, it would appear that this book is aimed at courses in accounting (rather than in, say, business ethics). Volumes in this series are designed to be used by themselves or in combination with readings and case studies. Because the authors are not accounting academics (one is a prominent business ethicist and the other is a practicing accountant), it is understandable that the book contains few references to the accounting ethics literature, and to that extent fails to engage the subject as it has developed over the last couple of decades. Nevertheless, this book is a welcome and valuable addition to the literature on accounting ethics, as it provides a fresh perspective on this important area of accounting. Since the field of accounting ethics is still at an early stage of development, book-length treatments, which are intended to provide wide-ranging examinations of the field, are welcome.

This book consists of two introductory chronologies of events relating to the Enron and WorldCom scandals, 10 text chapters, and five appendices containing various professional standards governing the practice of accounting in the United States. The chapters may be usefully divided into six groups, based on their usefulness in teaching accounting courses, as follows.

1. Chapter 1 (“The Nature of Accounting and the Chief Ethical Difficulty: True Disclosure”) is designed to describe the basic ethical issues in accounting.
2. Chapters 2 (“Ethical Behavior in Accounting: What Is Ethics?”) and 3 (“Ethical Behavior in Accounting: Ethical Theory”) deal with the nature of ethics and ethical theory, and their relation to ethical behavior.
3. Chapter 4 (“Accounting as a Profession”), which examines the nature of professions and the accounting profession.
4. Chapters 5 (“Accounting Codes of Ethics: The Principles”) and 6 (“Accounting Codes of Ethics: The Rules”) focus on the AICPA Code of Professional Conduct.
5. Chapters 7 (“Ethics in Auditing: The Auditing Function”), 8 (“The Ethics of Managerial and Financial Accounting”), and 9 (“The Ethics of Tax Accounting”) divide the practice accounting into three parts, and examine a number of issues relating to each aspect.
6. The last chapter (“The Ethics of the Accounting Firm: The Accounting Profession in Crisis”) is an examination of the current crisis in public accounting.

Some confusion relating to the purpose of accounting is expressed early in the book. On page 10, for example, it is stated that “... the accountant’s role is to furnish various entities who have a legitimate right to know about an organization’s affairs with useful information about those economic affairs. What is owed to those various entities, and an accountant has an obligation to provide, is a true picture of those affairs.” Again, on page 22, the authors state, “In summary, the accounting profession was developed to give a true and accurate picture of the financial affairs of organizations.” Accountants will note immediately the difficulty. While the primary purpose of accounting is to provide useful information to people who have an interest in the entity being reported on, the concept of truth in accounting is problematic, to say the least. Likewise, their characterizations of auditing and tax accounting (page 20) have significant shortcomings.

However, readers should not be put off by the vague, and not entirely correct, account of the nature of accounting. The book in fact emphasizes the importance of deception and lying, and not truth. This is, of course, a good thing, since the concept of truth in accounting is extremely complex and (to some) an ill-defined, if not useless, concept. The important things here – lying and deception – rightly provide the focus for later chapters.

Chapter 1 (and Chapter 7) provides a solid, if somewhat brief, discussion of the concepts of lying and the centrality of truthfulness (as opposed to truth or falsity) for assessing the ethics of information. Thus, the authors state, “If the use of information is benign and the information is truthful, no ethical problems arise. But if the information persuades people to act in one way or other, and their action either benefits or harms the persons giving or getting the information, such information-giving takes on ethical importance” (page 13).

The authors make a brief but suggestive observation that when management discloses information to outsiders, their actions are in some ways similar to selling and trying to influence the behavior of market participants: “The CEO is selling the board or the stockholders on the soundness of the company’s financial situation” (p. 13). This suggests that looking more closely at the connection between accounting and sales may be a fruitful course to pursue.

Chapters 2 and 3 provide clear and worthwhile discussions of the basic ideas underlying ethics and ethical theory. In Chapter 2, some important concepts are that being ethical

involves determining what actions one ought to perform, and that ethics involves the ability to justify our actions based on our moral beliefs. Another fundamental concept that plays a major role later in the book is to regard accounting ethics as an instance of role morality. That is, what accountants should and should not do must be determined by reference to the role or roles accountants play. Chapter 3 presents the major ethical theories clearly and concisely.

In Chapter 4, "Accounting as a Profession," the authors adopt what may be termed an idealistic definition of professions. According to this point of view, professions are characterized by a number of factors, such as possession of a specialized body of knowledge, higher education, high social status, a code of ethics, and acceptance of social responsibilities that advance the public interest (page 65). The primary purpose of the chapter is to establish that accountants are in fact members of a profession.

This largely conventional way of characterizing professions provides a basis for focusing the examination of professional ethics on codes of ethics (the subject of Chapters 5 and 6). Considering the continuing crisis in accounting that accountants need to confront, and that motivates this book, it would have been helpful to supplement this chapter with a presentation of an alternative socio-political account of professions. According to this point of view a profession is simply an occupation that has been granted the legal power to regulate itself in return for a commitment to acting in a socially responsible fashion. Thus, a profession is characterized as having entered into a kind of social contract with society that is supposed to benefit everyone.

This concept of a profession is a valuable alternative to the conventional view because it provides a clear basis for examining the nature of this contract and, in particular, the ethical demands it places on the profession. It also provides a basis for examining the current situation facing the profession (especially in the United States); it is clear to many that the profession (including the professional associations, accounting firms, and individual professionals) has not fulfilled its side of the bargain. This concept of professions would have been helpful in Chapter 10.

The Code of Professional Conduct of the American Institute of Certified Public Accountants is divided into two parts: a set of basic principles and a set of relatively detailed rules (and interpretations of the rules). Chapters 5 and 6 present these two aspects of the Code in turn. The main value of these chapters is to explain the theoretical foundations of this structure and to provide a theoretical rationale for the contents of the Code. Thus, they serve to elucidate the current structure of the Code, rather than to analyze it critically.

The auditing function is the focus of Chapter 7. The chapter is divided into sections on trust, the auditor's responsibility to the public and the basic responsibilities attendant on that responsibility, and auditor independence. The discussion is based on the role of auditors in attesting to the fair presentation of financial statement information.

In order to fulfill that role, the authors emphasize the central importance of character traits that support their judgments and actions. Specifically, auditors must have "as much honesty and integrity as possible" (page 111). Auditor independence is critical, according to the authors, because it "bolsters" honesty and integrity. This is a fair enough statement if it is interpreted as a statement about the rules for auditor independence contained in professional pronouncements. However, the relation between independence itself and these character traits (virtues) would appear to go the other way. That is, the more honest an auditor is and the

more integrity he or she has, the more he or she will be able to possess the primary character trait required for the performance of their role, i.e., to be able to act independently of client management. Similar to the approach taken in Chapters 5 and 6, the section on independence focuses on the written standards governing independence, including a discussion of the attempts of the late Independence Standards Board to take a more judgment-based approach to independence.

Chapter 8 (“The Ethics of Managerial and Financial Accounting”) suggests that ethical issues relating to internal management focuses more on external financial reporting than managerial accounting. Although attention to the problems of management accountants is thus limited, the authors concentrate their attention in this chapter on the standards of ethical conduct of the Institute of Management Accountants which they claim (erroneously) is “*the* code of ethics for management accountants” (p. 141). (This is not correct because large proportions of CPAs are employees of reporting entities and are subject to the Code of Professional Conduct of the AICPA.) Nevertheless, attention to non-CPAs is welcome.

After an examination of the important concept of objectivity, the authors present a somewhat lengthy discussion of whistle-blowing by accountants. This is an important, but neglected, topic. The IMA Code provides for, at most, internal whistle-blowing, and implies that external whistle-blowing is always a violation of the Code (Appendix ii, page 216). The codes governing accountants differ from almost all other professions, such as engineers, physicians, nurses, social workers, and others whose codes of conduct provide for the disclosure of confidential information under some conditions. In fact, most of them mandate breaking confidentiality in certain situations. In contrast, accountants have a strong responsibility to protect confidential information from disclosure. This much-neglected topic deserves more attention.

Chapter 9 (“The Ethics of Tax Accounting”) is also a worthwhile departure from much of the accounting literature since the ethical issues relating to tax accounting and tax planning have also been neglected. The authors begin with what many may regard as a controversial claim about the role of tax accountants, i.e., that tax accountants (like auditors) have a dual role, as both advisers to their clients and attestors to the government. Although many accountants may reject this characterization of the role of tax accountants, (and the responsibilities implied by it), it is an issue that deserves further debate and analysis.

Building on this claim, the authors address two ethical questions: whether there is an obligation to pay taxes that we might regard as unfair and whether taxpayers have an ethical obligation to pay more than the minimal amount of taxes due (i.e., to pay their fair share for the provision of government services)?

This leads into an examination of the ethics of tax shelters. Although much attention has been paid recently to illegal tax shelters offered by major accounting and law firms, ethical issues have been neglected. The authors make an interesting claim: “Taxation, as much as one does not like it, is the human invention that centralizes the sharing of the expense of performing government functions in a fair and equitable manner. To view accounting as a profession best employed in dodging those expenses is a distortion of the role of the accountant” (page 162). Similarly, on page 164, they claim that, “implicit in all of this [discussion of tax shelters] is a recognition of the responsibility of the accountant and firms

to uphold the soundness of our tax system—to draw the delicate balance between intended tax advantages and loopholes which undermine the system.”

In discussing the ethical issues of accounting firms and the accounting profession (the subject of Chapter 10), the book begins well, by mentioning the name of Abraham Briloff. Professor Briloff has been a thorn in the side of the accounting profession (the authors unfairly call him the profession’s “perennial scold” (page 186)), criticizing it sharply over a number of years for its ethical shortcomings.

There are two reasons for bringing this up. One is that Briloff’s views are not described or addressed by the authors. This is surprising in a way because, like the authors, he thinks that members of the accounting profession have important roles to play in organizations and that they must adhere to high standards of ethics and professionalism – including honesty and acting with integrity. Indeed, the lack of courage and integrity in the profession are Briloff’s main criticisms. Second, and on the other hand, the authors are not particularly critical of accounting firms or the profession as a whole. They do recognize that these “stories of inappropriate behavior by accounting firms lead us to ask what is going on in the accounting establishment today and whether the general tenor of what is going on in those firms is ethically acceptable. What seems to be going on, at least from the point of view of those critical of the direction the accounting profession is taking today, is that the profession has ceased to be a profession and succumbed to the pressures endemic to being a business driven by the profit motive” (page 174). However, they do not draw much from the vast literature going back decades (including Briloff) on these issues.

The authors take an interesting tack on these issues, by regarding accounting firms as businesses and then addressing two important and fundamental questions relating to the practice of public accounting: Whether accounting ethics is an oxymoron, i.e., a self-contradiction; and (having rejected that view) what are the social responsibilities of accounting firms? Regarding the latter, the question becomes for them the question of what responsibilities accounting firms have in addition to the pursuit of profits. This particular approach to the problems of public accounting has been given little or no attention in the accounting literature.

In summary, this book is a useful addition to the textbook market in accounting ethics. It would be most useful if used selectively in accounting courses, depending on the content and approach an individual instructor adopts. Especially in a free-standing ethics course, it would have to be supplemented liberally with additional readings, in order to provide a more complete picture of the field and the issues. It is at its weakest when it scratches the surface of long-discussed areas of accounting (such as the importance of true disclosure (primarily in Chapter 1)) and the ethics of accounting firms and the profession (primarily in Chapter 10). It is at its strongest when it builds on the authors’ expertise in business ethics to introduce new and valuable ideas from the perspective of outsiders to the literature. The chronologies at the beginning of the book are by now (with the apparent closing of the Enron/Andersen/WorldCom episodes) out of date, and are a distraction from a focus on ethics (as opposed to legal and regulatory issues). Its focus on the U.S. accounting profession is an understandable choice for the textbook publishing business. For this reason, instructors outside the United States will find the U. S.-centric chapters (mostly Chapters 5 and 6) of limited use; on the other hand, there are

many issues and sections of the book (e.g., much of Chapters 8, 9, and 10) that cross national boundaries.

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Accounting irregularities in financial statements: A definitive guide for litigators, auditors and fraud investigators, Benny K.B. Kwok. Gower Publishing Limited, Aldershot, Hampshire, England (2005). xix + 209 pages, £75.00, US\$144.95, ISBN: 0-566-08621 2

High profile accounting scandals in recent years have heightened the demand for information about accounting irregularities. This book represents a good effort to satisfy this thirst. Chapter 1 begins with an explanation of various financial statements and what constitutes generally accepted accounting principles (GAAP). It then offers details on the financial-reporting requirements for companies situated in Hong Kong and in the United Kingdom. This provides a good overview even for those who are familiar with the financial-reporting environments in Hong Kong and the United Kingdom. The chapter concludes by discussing practices which in these two countries are considered to be theft, false accounting, and various other offenses.

The first portion of Chapter 2 focuses on the nature of accounting irregularities, which includes unintentional ones (errors) as well as intentional ones (fraudulent financial reporting and misappropriation of assets). This approach seems to be at odds with the use of the term "irregularities" in the United States, where it refers to intentional acts only. Furthermore, the author suggests a very broad interpretation of irregularities by including acts of manipulating the choice and application of accounting policies within the boundaries of GAAP if the results are not consistent with a true and fair view of the financial statements. The major portion of the chapter discusses characteristics of financial information (e.g., relevance), financial reporting principles (e.g., going concern), and the basics of double-entry bookkeeping and transaction cycles. It would have seemed more natural, however, to place this material before the discussion of accounting irregularities.

Chapters 3 through 8 cover various types of accounting irregularities. In each of these chapters, cases are presented to illustrate how the irregularities can be perpetrated and recorded in the company's accounts, as well as how they might be detected. Each of these chapters also concludes with an excellent list of warning signs.

In Chapter 3, the focus is on irregularities involving the overstatement of sales revenue. After reviewing the relevant GAAP, the author discusses three types of sales overstatement: permanent overstatements arising from fictitious sales, temporary overstatements resulting from shifting sales to an earlier time period, and overstatements involving conditional sales which may be permanent or temporary. It is not clear why the author categorizes the latter two types as revocable sales, as it would seem that only the conditional sales can be described as revocable.

Chapter 4 covers the perpetration of accounting irregularities by understating expenses and losses. These irregularities are categorized into ones dealing with unrecorded expenditures, aggressive capitalization, and delays in expense/loss recognition.

Accounting irregularities caused by overstating assets is the subject of Chapter 5. Specifically, three types of assets are discussed: fixed assets, inventories, and trade receivables. Regarding fixed assets and inventories, separate discussions are provided for irregularities due to inflating physical counts and inflating unit cost/value. For inventories, there is also a discussion about delaying write-offs. This topic could just as easily have been covered in Chapter 4 as part of the section on delays in expense/loss recognition. As for trade receivables, two types of irregularities are described: fictitious receivables and failure to establish an adequate allowance for bad debts. Regarding the latter, the author notes that the provision for bad debts is sometimes used as a profit-smoothing device. Income smoothing is a real phenomenon and should have been introduced when describing the nature of irregularities in Chapter 2. Curiously, Chapter 5 does not discuss irregularities resulting from overstatements in assets such as intangibles, non-trade receivables, or investments.

In Chapter 6, the author explains how irregularities may occur from understatement of four types of liabilities: trade payables, accruals/provisions, contingent liabilities, and off-balance-sheet financing. There is potentially a fair amount of overlap with the understatement of expenses covered in Chapter 4, but the author repeats very little about the irregularities already mentioned in the prior chapter. Chapter 6 would have benefited from more illustrative cases. Only three were presented, in contrast to 13 in Chapter 3, nine in Chapter 4, and five in Chapter 5.

While Chapters 3 through 6 discuss irregularities involving overstatements and understatements of financial-statement items, Chapter 7 deals with irregularities involving manipulations of classification, presentation style, and disclosure. The manipulations that are described revolve largely around the income statement. It would have been useful to have provided more illustrations of irregularities involving the balance sheet as well as the notes to the financial statements.

Unlike the previous chapters, which are organized around descriptions of various types of irregularities, the discussion in Chapter 8 centers around various motives for perpetrating accounting irregularities. The motives relate to tax evasion, theft, commercial disputes, and matrimonial breakdown. These irregularities also differ from those in previous chapters in that their primary objectives are not to distort financial-statement items, though this often occurs as by-products of the irregularities. Furthermore, while virtually all irregularities covered in prior chapters serve to inflate profits or net assets, most of the irregularities depicted in Chapter 8 aim to understate profits or net assets.

Chapter 9 provides closure by discussing deterrents to accounting irregularities. The author begins by describing how audits serve to deter irregularities, as well as the limitations of audits. The bulk of the chapter distinguishes between two types of deterrents labeled as micro-deterrents and macro-deterrents. The former relate to what can be done within the company or organization and include internal controls as well as people and culture. The macro-deterrents go beyond the company or organization and consist of accounting and auditing standards as well as mechanisms for corporate governance. The latter include strong regulatory bodies which enforce regulations and penalize non-compliance. These are clearly external to the organization, but other measures

discussed, such as audit committees, can arguably be considered as more micro-deterrents than macro-deterrents.

All in all, the book does a good job of explaining and illustrating accounting irregularities to its target audience of litigators, auditors, and fraud investigators. While the author focuses on accounting and auditing standards in Hong Kong and the United Kingdom, readers from the United States as well as other countries can certainly benefit from this book. One of its greatest strengths is its organization and classification of accounting irregularities. This enables the reader to better digest the particulars of the irregularities in addition to how they may relate to one another.

Another positive feature of the book is its wealth of cases to illustrate the irregularities. Although some of the cases are quite complex, they are generally presented clearly and help to crystallize the explanations of how irregularities may occur. I did wonder, though, whether the cases that were presented represent the most common types of accounting irregularities. Relevance would certainly have been enhanced had the author provided such evidence. I also wondered whether the cases were taken from actual situations. The author mentions in the preface (page xvi) that the cases include fictitious names, but are they completely made-up or based on real events? It would have been appealing to at least supplement these cases with ones from actual companies like Enron, WorldCom, Tyco, etc. (and using the actual company names too). Certainly there have been many publicly available examples in recent years.

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Erratum

Erratum to “Book review: Ethics, governance and
accountability: A professional perspective”
[The International Journal of Accountancy
41 (2006) 321–325]

In TIJA 41-3, September 2006, the name of the author of the Book Review “Ethics, governance and accountability: A professional perspective,” by Dellaportas S., Gibson, K., Alagiah, R., Hutchinson, M., Leung, P., Van Homrigh, D. John Wiley and Sons, Australia, Milton (Qld.), 2005 was inadvertently omitted.

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We regret having omitted this identification.

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INFORMATION FOR AUTHORS

AIMS and SCOPE. *The International Journal of Accounting (IJA)* aims at publishing accounting research that contributes to the analyses and understanding of international business conditions and transactions. The editors of *IJA* encourage authors to submit high quality research that studies accounting as a subsystem of the cultural, economic and institutional factors of different nations. Other than occasional commissioning of papers on specific topics, the editors of *IJA* will select publishable manuscripts after going through the normal refereeing process.

Replications using other countries' data will not be considered without adequate discussion that would answer the following four questions:

1. How does the "information environment" in country X differ from that of the U.S.A.?
2. What are the unique institutional or cultural characteristics of the subject country?
3. How are these differences expected to impact the accounting and auditing processes and numbers?
4. Could these differences lead to expectations of different findings? Why not?

EDITORIAL POLICY

The International Journal of Accounting will publish research studies that make contributions to accounting in different cultures and different economies. The findings of these research studies should be based on methodologies, both archival and experimental, analytical modeling, or a combination of these methodologies. The quality of the work, the nature of the contribution, and reproducibility of the results are key determinants in the publication decision. The Editors will endeavor to provide authors with early decision so that revisions will be encouraged only for papers that the Editors consider to be potentially publishable.

STYLE

1. Manuscripts should be submitted electronically to ciera@uiuc.edu in a WORD or PDF format.
2. All manuscripts must be double-spaced and numbered consecutively, including an abstract of approximately 100 words, and key words for indexing consistent with JEL Index. Submitted papers must be neither previously published nor submitted elsewhere. Authors are responsible for obtaining permission from the copyright holder (usually the publisher) to use any lengthy quotations, illustrations, or tables from another source.
3. Books to be reviewed should be sent to Hervé Stolowy, HEC School of Management, Department of Accounting and Management Control, 1, rue de la Libération – 78351, Jouy-in-Josas Cedex, France.
4. The author's full name, affiliation, and e-mail address should appear on the title page only.
5. All tables, figures and illustrations should accompany the manuscript each typed on a separate sheet. Captions should clearly identify the contents of tables and charts. All should be referred to in text and indication given as to location. For example:

TABLE 1 ABOUT HERE.

6. Footnotes should be numbered consecutively throughout the manuscript with superscript Arabic numerals. They should be collected in a separate file at the end of the text.
7. References should be cited in the text as follows:

Schweikart and O'Conner (1989) agree with this method. Other studies have found similar results (Smith, 1991).

On a separate **References** page(s), each cited work should appear, double-spaced, in alphabetical order as follows:

Journal Articles

Barth, M. E., Clinch, G. J., and Shibano, T. (1999). International accounting harmonization and global equity markets. *Journal of Accounting and Economics*, 26, 201–235.

Books

Neter, J., Wasserman, W., and Whitmore, G. A. (1993). *Applied Statistics* (4th ed.). Needham Heights, MA: Allyn & Bacon.

Hofstede, G., and Schrueder, H. (1987). A joint reply to Montagna. In: B. Cushing (Ed.), *Accounting and Culture* (pp. 29–30). Sarasota, FL: American Accounting Association.

8. Upon acceptance the author is to submit one copy of the approved manuscript properly edited for style and the English language. The accuracy of the final draft and proofs is the responsibility of the author.



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